MYSORE

A GAZETTEER COMPILED FOR GOVERNMENT

REVISED EDITION

BY

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VOL · I

MYSORE IN GENERAL

Westminster

ARCHIBALD CONSTABLE AND COMPANY

2 WHITEHALL GARDENS S · W

MDCCCXCVII

PRINTED BY
WOODFALL AND KINDER, LONG ACRE
LONDON

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485
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1897
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PREFACE

When the former edition of this work was published, I little expected to be called on, twenty years later, to revise it. And Mysore in the interval has undergone such great and radical changes, and so much has been added to our knowledge of its past by recent discoveries, that what appeared in the prospect a comparatively easy task has proved to be in reality one of considerable difficulty, and involving for its completion a longer period than was anticipated, especially as I have been at the same time engaged on other duties of an exacting nature.

While the general arrangement of the work in the original edition has been adhered to, nearly every part has been either entirely re-written or greatly altered and extended. But the present edition is confined to the State of Mysore, and does not, as before, include Coorg. In the first volume, the section on Geology was in the press before the appointment of Mr. Bruce Foote to Mysore was known to me or he had arrived here, otherwise I would gladly have handed over that special subject to him for revision. His views are, however, quoted in the Addenda at the end of the second volume. Most parts of the sections on Flora, Fauna and Ethnography have been entirely re-written in accordance with the latest information. So also, in an especial manner, the chapters on History and Literature : the former having been greatly added to in both the most ancient and the most modern periods ; while the latter is almost entirely new. The chapter on Administration has been revised throughout and brought up to date with as much fulness as could be done in the space at disposal. The Appendix on Coins is mostly new. In the second volume, there has been a close and general revision of local details, the topical changes of recent years having been both frequent and extensive. In the Glossary at the end have been included new terms of the Revenue Survey.

Of the country which forms the general subject of the work, it cannot be denied that public interest in it has much increased since the former edition of this work appeared, its enlightened progress and its prominent position as a chief Native State in India having excited general attention. But, apart from this, there are not wanting in the

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country intrinsic elements of attraction which have given it importance in the past. On first joining the service here I was considerably disappointed to be told, on inquiring from persons supposed to be acquainted with the subject, that Mysore had no history, was quite a modern State, and virtually unknown before the wars with Haidar and Tipu brought it into prominence. As regards its language and literature, also, I was led to suppose that the language was merely a rude dialect of Tamil, and that literature it had none. Of the accuracy of these views I had doubts at the time, and how completely opposed they were to actual facts the present work will, it is hoped, serve to make clear. For the researches in which I have been for long engaged have brought to light a body of evidence which carries back the history, with scarcely a break in the sequence, as far as to the 3rd century B.C., while the language is found to have been highly cultivated at probably an earlier date than any other South Indian vernacular, and to be replete with a literature of great volume and interest.

If there be any truth in the observation that small countries with diversified and distinctive physical characteristics have played the greatest part in the world's history, and given rise to its most distinguished men,—Greece, Palestine, England and others being quoted as instances,—Mysore, it seems to me, may fairly claim a place in the category. Not only does she abound in the picturesque features of lofty mountains and primeval forests, of noble rivers and mighty cataracts, but—to mention only a few of the products specially pertaining to her—she yields by far the most gold of any country in India, and her treasure in the past, carried off to the north by Musalman invaders, may have found its way to Central Asia among the spoils of Tartar hordes; she is the peculiar home of the sandal and also of teak, a special haunt of the elephant, rears a famous and superior breed of horned cattle, supplies as the staple food of her people the nutrient grain of rági, was the cradle in India and is still the chief garden for coffee cultivation. Thus in every department of the natural world she may claim some pre-eminence. In the fine arts she has produced marvellous examples of architecture and sculpture. In relation to humanity, again, she has been to the two greatest Hindu reformers a home for the monastery of one, and an asylum to the other. Nearly every form of faith, from Buddhism and Jainism to Islam, has here had its day, and she is now known as having largely adopted and still strongly holding a special cult of native origin not conforming to Brahmanism. The Malnád region of Mysore has been the birthplace of royal races dominant in the south—the Kadambas, the Hoysalas, and perhaps also the Vijayanagar sovereigns. In modern times, the great general of the

age, the Iron Duke, learned in the Malnád wilds of Mysore, no less than in the plains of the Deckan, those lessons of warfare which enabled him to end the ambitious career of the subjugator of Europe, who once thought to make an ally of Mysore and to conquer the East. Waterloo may in one sense have been won in the playing fields of Eton, but it was Mysore that contributed to develop the genius of the commander who carried the day, decried though he had been as the Sepoy General.

One cannot but be struck, in going over the modern history of Mysore, with the magnanimity of the British to this country, and equally with the manner in which the country has responded to the good influences exerted upon it. That it may continue to prosper must be the wish of all.

As in the former edition, so in this, I hold myself solely responsible for all information it contains, though I have endeavoured throughout to indicate the authorities on which it is based. The work has been left by Government entirely in my hands. The published Administration Reports are now not annual but quinquennial, and the last issued is to 1891. I have had, therefore, to resort to various sources for later information. But the greatest drawback I have felt has been the want of a good general library of reference.

No one can be more conscious than the author of the shortcomings of a work embracing such a variety of subjects and extending over so great a range of time. I have striven to accomplish to the best of my ability the task entrusted to me, and can only bespeak for the present edition as indulgent and favourable a reception as was accorded to the original one.

Bangalore, *Sept. 1897*.

PREFACE TO FIRST EDITION

On the termination, in May 1799, of the last English war with Mysore, and the restoration of the Hindu Ráj, which followed, it was resolved by the East India Company to obtain a topographical survey and general statistical account of the Territories that, for many years preceding, had been the scene of political events which attracted a large measure of attention not only in India and the East, but also in England, France, and other European countries.

Dr. Francis Buchanan (who subsequently assumed the name of Hamilton) was accordingly deputed, in February 1800,[1] by the Governor-General, the Earl of Mornington, afterwards Marquis Wellesley, to travel through and report upon "the Dominions of the Rája of Mysore, and the country acquired by the Company in the late war from the Sultan, as well as that part of Malabar which the Company annexed to their own Territories in the former war under Marquis Cornwallis." He set out on this journey from Madras on the 23rd April 1800, and completed it on the 6th July 1801. His report was written from day to day, while travelling, in the form of a Journal, which, on completion, was transmitted to England and placed in the library of the East India House. On the recommendation of the learned Dr. (afterwards Sir Charles) Wilkins, the Librarian, its publication was sanctioned at the end of 1805, but the manuscript went to press apparently without the knowledge of its author. "Soon afterwards," says Dr. Buchanan, in his introduction, "my duty having unexpectedly brought me to England, I was agreeably surprised to find that my Journal had obtained a reception so favourable. It is true I wished to have abridged the work before publication, and altered its arrangement; but as the printing had commenced before my arrival, and as my stay in England was likely to be very short, I could not undertake such alterations. I have therefore contented myself with revising the manuscript,

[1] Then already well known for his valuable botanical researches in Burma and Chittagong.

and the superintendency of the press has been entrusted to Mr. Stephen Jones."

The work appeared in 1807, in three quarto volumes, under the title of *A Journey from Madras through the Countries of Mysore, Canara and Malabar.* Every page teems with valuable information, but the disjointed style, inseparable from the nature of a daily journal, makes it difficult to consult, and it is much to be regretted that the accomplished author had not the opportunity of throwing the work into a more suitable form for publication. It was reprinted, in two volumes octavo, at Madras in 1870.

While Dr. Buchanan was engaged in these travels, Colonel Colin Mackenzie—eventually Surveyor-General of India, and well known to Orientalists for his antiquarian collections in Southern India[1]—was commissioned by the Governor-General to make a Survey of Mysore. He was allowed only three assistants, with a medical officer as surgeon and naturalist. In spite of many obstacles, however, the survey was continued till 1807. The result was not alone a valuable contribution to geographical knowledge, but considerable materials were acquired of the statistics and history of the country. These were recorded in folio volumes transmitted to the East India Company. Copies of eight volumes, attested by Colonel Mackenzie's signature, are deposited among the records of the Mysore Residency. The most novel and important of the discoveries made by him was that of the existence of the sect of Jains in India, which he was the first to bring to notice.

The first surgeon and naturalist attached to the Mysore Survey was Dr. Benjamin Heyne, whose papers on a variety of subjects relating to this and the neighbouring countries were published in London in 1814 (also by the recommendation of Dr. Wilkins, Librarian at the East India House) under the title of *Tracts, Historical and Statistical, on India.* Subsequently, the gifted Dr. John Leyden[2] was attached to

[1] Including, according to the catalogue by Prof. H. H. Wilson, 1,568 manuscripts of literary works, 2,070 local tracts, 8,076 copies of inscriptions, 2,150 translations, 2,709 plans and drawings, 6,218 coins, and 146 images and antiquities.

[2] "He rose," as Sir John Malcolm, Resident of Mysore describes, "by the power of native genius, from the humblest origin to a very distinguished rank in the literary world. His studies included almost every branch of human science, and he was alike ardent in the pursuit of all. The greatest power of his mind was perhaps shown in his acquisition of modern and ancient languages. . . ."

His end was most sad. On the conquest of Java in 1811, he accompanied the Governor-General, Lord Minto, to that island, and hearing at Batavia of a library containing a valuable collection of Oriental manuscripts, hastened to explore it. The long low room, an old depository of effects belonging to the Dutch Government, had been shut up for some time, and the confined air was strongly impregnated with the poisonous quality which has made Batavia the grave of so many Europeans. With-

the Survey in the same capacity, but beyond a few anecdotes and verses in his *Poetical Remains*, published in London in 1819, I have failed to meet with anything of his specially about this Province, though it is stated that "he drew up some useful papers, which he communicated to the Government, relative to the mountainous strata and their mineral indications; as to the diseases, medicines and remedies of the natives of Mysore, and the peculiarities of their habits and constitution by which they might be exposed to disease; as to the different crops cultivated in Mysore and their rotation; and to the languages of Mysore, and their respective relations." Heyne's observations were confined to the north and east; Leyden's papers, if traced, would give us information regarding the south and west.

Colonel Mark Wilks, distinguished as the historian of Mysore, at which Court he was for a time Resident, published his well-known work under the title of *Historical Sketches of the South of India*, in three volumes quarto; the first of which appeared in London in 1810, and the two last not till 1817, owing to his appointment during the interval as Governor of St. Helena, which office he held until the imprisonment on that island of the emperor Napoleon Buonaparte. "It displays," as an old reviewer justly observes, "a degree of research, acumen, vigour, and elegance, that render it a work of standard importance in English literature." A reprint, in two volumes octavo, was published in Madras in 1869.

Some monographs drawn up by officers of the Mysore Commission soon after the assumption of the Government by the British in 1831, with kindred papers, were printed in 1864 as *Selections from the Records*. In 1855 a *General Memorandum* was prepared by Sir Mark Cubbon for the Marquis Dalhousie, and since that time *Administration Reports* have been regularly issued every year.

out the precaution of having it aired, he rushed eagerly in to examine its treasures, was seized in consequence with a mortal fever, and died on the 28th August, after three days' illness, in the 36th year of his age.

Southey wished "that Java had remained in the hands of the enemy, so Leyden were alive," while Sir Walter Scott paid the following tribute to his memory in the *Lord of the Isles*:—

His bright and brief career is o'er,
And mute his tuneful strains;
Quenched is his lamp of varied lore,
That loved the light of song to pour;
A distant and a deadly shore
Has Leyden's cold remains.

The centenary of Leyden's birth was celebrated with public rejoicings in 1875 at his native village of Denholm, on the banks of the Teviot, in Scotland.

Other sources of information exist,[1] for a good deal has been written in connection with Mysore during a century back, much of it partisan; but the above were some of the chief public and authentic materials accessible for a work which had become a desideratum, namely, a Gazetteer of Mysore brought up to date, presenting in a handy form and within a moderate compass all that was of interest in relation to the natural features, resources and productions of the country; its history, population, industry, administration, and any other subjects that had a claim to be treated of in such a handbook.

. . . . . .[2]

The first step taken towards supplying the want was in June 1867, when a circuiar was addressed by Mr. Saunders, C.B., the officiating Chief Commissioner, to the Superintendents of Divisions, directing the compilation, for each District, of a Gazetteer similar to one then lately published of the Bhandara District in the Central Provinces. In pursuance of these orders, during the next two years, nine manuscript volumes were prepared. Only two, however, came to be printed; namely, one for Mysore District, by Mr. H. Wellesley; and one for Kolar, I presume by Mr. Krishnaiengar, C.S.I. Of the remainder, those for Bangalore and Kadur were not completed; the one for Shimoga bears the signature of Captain Gordon Cumming; that for Hassan of Major W. Hill; that for Tumkúr of Major C. Pearse; and that for Chitaldroog of Mr. Krishna Rao. The subsequent *Reports on the Census* of November 1871, by Major Lindsay, naturally superseded most of the statistical information contained in them.

The design to appoint an editor who should bring out one work on a uniform plan was next adopted, and eventually, in 1873, with the sanction of the Government of India, it was proposed to me to undertake the compilation of the *Gazetteer of Mysore and Coorg*. A personal acquaintance more or less with every part of the two countries, gained in the course of official duty; a familiarity with the local vernaculars; and some measure of information regarding the literature and ancient history of this part of India, derived from antiquarian studies; led me to anticipate the work with interest. But being, at almost the same time, raised to the head of the Educational Department, I found that the labours of a new office which is no sinecure, left little leisure for the extra duty imposed upon me. I was therefore forced to be content for some time with making tours to such parts of the country as I had not recently visited, and collecting information from various quarters.

[1] I would particularly mention *Eastern Experiences*, by Mr. L. Bowring, C.S.I., late Chief Commissioner, published in London in 1871.

[2] A paragraph relating to Coorg is here omitted.

However, when in 1874 Dr. Hunter, Director-General of Statistics, who is charged with the editorship of the Imperial Gazetteer for the whole of India, visited Bangalore, I was able to lay before him the plans I had formed for the work, and at his request undertook to prepare for Mysore a manual of each District separately, which I had not at first intended, as it seemed to involve a certain degree of repetition. I am now glad that I did so, as it obliged me to go more minutely into several subjects. Dr. Hunter again paid a visit to Bangalore in January 1876, when a part of the work had been printed, and in his report to Government was pleased to express the strongest approval of what had been done, and his "sense of the high value of the materials that had been supplied."

The Gazetteer has thus finally taken the shape of two volumes devoted to Mysore (and a third to Coorg). Of the former, the first treats of Mysore in general, the second of Mysore by Districts, eight in number. A reference to the table of contents prefixed to each volume will enable the reader to see at a glance the arrangement and distribution of subjects. Volume II, it should be stated, was printed first. . . . In general the present work has been brought down to 1875, but in the portions printed after that, a few statistics of later date have been admitted. I had thought to append a short biographical notice of some of the remarkable men, both Native and European, who have been connected with Mysore, but feared it would extend the work too much, and perhaps be considered foreign to its design. The subject, however, is one full of interest.

I will not deny that the Gazetteer has caused far more labour than I had anticipated, principally owing to the demands of an extensive Department, which prevented my ever giving undivided attention to the compiling of it. But these are conditions under which much of the best work in India has been accomplished, and I gratefully acknowledge the indulgence which has been extended by Government to any apparent, but unavoidable, delay in bringing the task to completion.

With regard to all such information and statements contained in these volumes as I am not personally responsible for, I have endeavoured to make a point of mentioning throughout the body of the work the authorities on which they are based; and my sincere and hearty thanks are tendered to all who have favoured me with any information or assistance, as well as to the Press. I may add that the proofs have been seen, on the part of Government, by Major Tredway Clarke, Officiating Secretary to the Chief Commissioner.

BANGALORE, *Xmas 1876*.

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MYSORE

PHYSICAL GEOGRAPHY

THE State of Mysore[1] occupies a position physically well defined, in the South of India ; and has been termed a rocky triangle, a not inapt description. It is a table-land, situated in the angle where the Eastern and Western Ghat ranges converge into the group of the Nilgiri Hills. West, south and east, therefore, it is enclosed by chains of mountains, on whose shoulders the plateau which constitutes the country rests. On the west the boundary approaches at one part to within 10 miles of the sea, but in general preserves a distance of from 30 to 50 miles from the coast : on the east the nearest point is not less than 120 miles. The southern extremity is 250 miles from Cape Comorin. The northern frontier is an exceedingly irregular line, ranging from 100 miles south of the river Krishna on the west to 150 on the east.

The country extends between the parallels of 11° 38′ and 15° 2′ north latitude, and between the meridians of 74° 42′ and 78° 36′ east longitude, embracing an area of 29,305 square miles, as determined by the Surveyor-General of India from the recent survey on the one-inch scale. (It is therefore nearly equal to Scotland, whose area is 29,785 square miles.) The greatest length north and south is about 230 miles, east and west about 290.

[1] The name is that of the capital, properly *Maisúr*, for *Mahishúr*,—from *mahisha*, Sans. for buffalo, reduced in Kan. to *maisa*, and *úru*, Kan. for town or country,—which commemorates the destruction of Mahishásura, a minotaur or buffalo-headed monster, by Chámundi or Mahishásura-mardani, the form under which the consort of Siva is worshipped as the tutelary goddess of the Mysore royal family.

Except in a passage in the Mahawanso, where it is called Mahisha-mandala, the designation of the country throughout Hindu literature is Karnáta or Karnátaka (for derivation see chapter on Language), which properly applied to the country above the Ghats. But the Muhammadans included in the name their conquests below the Ghats as well, and the English, going a step further, erroneously restricted it to the low country. Hence Carnatic and Canara now designate, in European works of geography, regions which never bore those names; while Mysore, the proper Karnátaka or Carnatic, is not so called.

It is surrounded by the Madras Presidency on all sides, except on part of the west, where the Bombay Presidency northwards and Coorg southwards form the boundaries. The Madras Districts bordering on it are Bellary and Anantapur on the north; Kadapa, North Arcot and Salem on the east; Coimbatore, Nilgiris and Malabar on the south; South Canara on the west. The Bombay Districts of Dharwar on the north and North Canara on the west complete the circle. Coorg intervenes between the adjacent parts of South Canara and Malabar on the south-west.

The general elevation rises from about 2,000 feet above the sea level along the northern and southern frontiers to about 3,000 feet along the central water-parting, which separates the basin of the Krishna from that of the Kávéri and divides the country into two nearly equal parts. But the surface is far from preserving the even character suggested by the designation of table-land. For the face of the country is everywhere undulating, much broken up by lines of rocky hills or lofty mountains, and scored in all parts by *nálas* or deep ravines. There is probably not a square mile in the whole superficies absolutely flat or level, the slope of the ground ranging from 10 to 20 feet per mile in the more level portions, and as high as 60 and 80 feet elsewhere.

The country is longitudinally intersected by single or aggregated chains of hills, running chiefly north and south, or in a direction nearly parallel to the two coasts. They lie at uncertain and unequal distances from each other, and accordingly form sometimes wide and sometimes narrow valleys. Isolated peaks of massy rock, termed by Europeans *droogs*,[1] rearing their heads to 4,000 or 5,000 feet above the level of the sea, stand forth like sentinels on every hand; mostly crowned with the remains of fortifications, whose position, with the advantage of an unfailing supply of water at the summit, rendered them wellnigh impregnable strongholds. Besides these, clusters or piles of naked rocks, composed of immense rounded boulders, are frequent; large fragments being often delicately poised, like logging stones, upon some projecting point; appearing as if a touch would overturn them, and yet sometimes supporting a shrine or *mandapa*.

Natural divisions.—Mysore naturally divides itself into two separate regions, each of which has well-marked and distinctive features.

Of these the Malnád,[2] or hill country, lies to the west, and is confined to the tracts bordering or resting on the Western Ghats. It is a land of magnificent hill and forest, presenting alternations of the most diversified

[1] Properly *dur-ga*, a Sanskrit word meaning *difficult of access*, and denoting hill-fort.

[2] Kan. *Male*, hill; *nádu*, district, region.

and charming scenery. A fertile soil and perennial streams clothe the valleys with verdant cultivation. The sheltered hillsides are beautiful with waving woods, which give shade to numerous plantations of coffee. Higher up are swelling downs and grassy slopes, dotted over with park-like groups of trees. Above all, the gigantic mountains rear their towering crests in every fantastic form of peak. Human dwellings are few and far between A cottage here and there, picturesquely situated on the rising ground bordering the rice-fields, and hidden amid plantations of areca palm and plantain, marks the homestead of a farmer and his family. Towns there are none, and villages of even a dozen houses rare. The incessant rain of the monsoon months confines the people to their own farms. Hence each householder surrounds himself with all he needs, and succeeds in making himself to a great extent independent of the external world. The conditions of this isolated life are insupportable to immigrants from the plains.

But by far the greater portion of the Province, or all to the east and north of a line from (say) Shikarpur to Periyapatna, continued along the southern border to the Biligirirangan hills, belongs to the division of Maidán, Bail shíme, or open country. Although much of the intermediate region partakes of the characteristics of both, the transition from the Malnád to the Maidán is in some places very marked. Dense forests, which shut in the view on every hand, give place to wide-spreading plains: the solitary farm to clustering villages and populous towns. Man meets with man, the roads are covered with traffic, and the mind feels relief in the sympathy of numbers.

The means of water-supply and the prevailing cultivation give the character to the various parts of the open country. The level plains of alluvial black soil, as in the north, growing cotton or millet; the districts irrigated by channels drawn from rivers, as in the south and west, displaying the bright hues of sugar-cane and rice-fields; the lands under tanks, filled with gardens of cocoa and areca palms; the higher-lying undulating tracts of red soil, as in the east, yielding ragi and the common associated crops; the stony and wide-spreading pasture grounds, as in the central parts, covered with coarse grass and relieved by shady groves of trees. The aspect changes with the seasons, and what in the dry and cold months, when the fields are lying fallow, appears a dreary and monotonous prospect, speedily assumes under the first operations of the plough the grateful hues of tillage; which, under the influence of seasonable rains, give place in succession to the bright verdure of the tender blade, the universal green of the growing crops, and the browner tints of the ripening grain. The scene meanwhile is full of life, with husbandmen, their families and cattle engaged in the

labours of the field. These are prolonged in stacking and threshing until the cold season again sets in and the country once more assumes a parched and dusty aspect.

River systems.—The drainage of the country, with a slight exception, finds its way to the Bay of Bengal, and is divisible into three great river systems; that of the Krishna on the north, the Kávéri on the south, the two Pennárs, and the Pálár on the east. The only streams flowing to the Arabian Sea are those of certain taluqs in the north-west, which, uniting in the Sharavati, hurl themselves down the Ghats in the magnificent falls of Gersoppa; and some minor streams of Nagar and Manjarabad, which flow into the Gargita and the Netravati.[1]

A line drawn east from Ballálráyan-durga to Nandidurga (Nundydroog) and thence south to Anekal, with one from Devaráydurga north to Pavugada, will indicate approximately the watershed separating the three main river-basins. From the north of this ridge flow the Tunga and the Bhadra, rising in the Western Ghats and uniting in the Tungabhadra, which, with its tributary the Hagari or Vedavati, joins the Krishna beyond the limits of Mysore in Srisaila near Karnul. From the south of the line, the Hemavati (with its affluent the Yagachi), the Lokapávani, Shimsha, and Arkavati flow into the Kávéri, which, rising in Coorg and taking a south-easterly course through the country, receives also on the right bank the Lakshmantirtha, the Gundal, the Kabbani and the Honnu Hole before quitting the territory. From the east of the line, in the immediate neighbourhood of Nandidurga, spring three main streams, forming a system which Lassen has designated "die Tripotamie des Dekhans," namely, the Uttara Pinákini or Northern Pennár (with its tributaries the Chitravati and Pápaghni), which discharges into the sea at Nellore; the Dakshina Pinákini or Southern Pennár,[2] which ends its course at Cuddalore; and between them the Pálár, whose mouth is at Sadras. A continuation of the east and west line through Nandidurga to Sunnakal will mark the water-parting between the first and the other two; which, again, are divided by a line passing from Jangamkote to Bowringpet and the Betaráyan hills.

More accurately described, the axial line or "great divide" which forms as it were the backbone of the country, starts from the north of Ballálráyandurga and runs east-by-north to near Aldur. Thence it makes a bend, first, northwards up to the western extremity of the Baba

[1] The course of each river is described in detail in Vol. II.

[2] Its name below the Ghats appears to be *Poni-ár* or *Ponn-ár*, golden river, *ár* being the Tamil for river. It would be very convenient were geographers to agree upon restricting the name Penna to the northern stream and that of Ponna to the southern. The former is also called Pennér (written Pennair), *éru* being the Telugu for river.

Budan range and then south-east, passing between Belur and Halebid, down to Sige Gudda in the north of the Hassan taluk. From this point it strikes across the map in an east-north-east direction, rounding the southern extremities of the Harnhalli and Hagalvadi hills, up to near Kortagiri, where it encounters the great meridional chain of mountains. Following the range south, past Devaráydurga to near Dodbele, it resumes an east-north-easterly course to Nandidurga and continues the same to the frontier near Sunnakal. Geographically it lies between the parallels of 13° 10′ and 13° 25′.

A line projected north from the west of Kortagiri up through Pavugada to the frontier, and one south from Nandidurga by Bangalore to Anekal, mark pretty nearly the limits of the respective river-basins in the transverse direction. This water-parting falls between the meridians of 77° 10′ and 77° 30′.

The basin of the Sharavati, which runs to Honávar on the Canara coast, occupies the west of the Shimoga District. It may be defined by a line drawn from Kodachádri south-east to Kavaledurga, thence north-east by Humcha to Masarur, and west-north-west by Anantapur and Ikkeri to Talguppa. The streams between Kodachádri, Kavaledurga and the Agumbi ghat westwards, run down to Kondapur; and those of western Manjarabad, to Mangalore.

The following statement contains an estimate of the total length, within the Province, of the main rivers with their principal tributaries; and the total area of the catchment basin under each river-system within the same limits :—

River System	Total Length of Rivers	Total Area of Basins
	Miles.	Square Miles.
Krishna	611	11,031
Kávéri	646	9,486
N. Pennár	167	2,280
S. Pennár	32	1,541
Pálár	47	1,036
Sharavati and west coast rivers	103	1,881

Owing to either rocky or shallow beds, none of the Mysore rivers is navigable,[1] but timber floats are carried down the Tunga, the Bhadra,

[1] From the following statement in Buchanan it appears that Haidar attempted to establish navigation on the Tunga. "From Mangalore Haidar brought to Shimoga many carpenters, and built a number of lighters of about eight tons burthen. They are strong and flat-bottomed; but, as the greater part of them have been allowed to remain on the bank where they were built, I doubt not that they were found very useless. The attempt is, however, no impeachment on the sagacity of Haidar, who

and the Kabbani at certain seasons. Most of the streams are fordable during the dry months, or can be crossed by rude bridges formed of logs or stones thrown across from boulder to boulder. During floods, and when freshes come down, traffic over the streams is often suspended until the water subsides. But throughout the rainy season they are generally crossed at the appointed ferries by rafts, basket boats, canoes, or ferry boats. Men also sometimes get over supporting themselves on earthen pots.

The *teppa* or raft is formed of bamboos lashed together, and merely affords an unsteady footing, the water washing freely through. The *harigólu* or coracle is a circular basket of stout wicker-work, composed of interlaced bamboo laths and covered with buffalo hides. It is 8 or 10 feet in diameter, with sides 3 or 4 feet high.[1] A smaller one, which holds only two people, is used for crossing some jungle streams. The *dóni* or canoe is a dug-out, or hollowed log pointed at the two ends. The *sángda*, or regular ferry boat,[2] is formed of two canoes secured together, with a platform or deck fastened upon them, and has sides turning on hinges which, let down, form a gangway for loading and unloading. All these craft are propelled by a long bamboo pole, and are dependent for their course upon the currents. But paddles are sometimes used with the canoe.

Though useless for purposes of navigation, the main streams, especially the Kávéri and its tributaries, support an extensive system of irrigation by means of channels drawn from immense dams, called anicuts,[3] which retain the upper waters at a high level and permit only the overflow to pass down stream. These works are of great antiquity,

having been educated in a place remote from every kind of navigation, could have no idea of what boats could perform, nor of what obstacles would prevent their utility. To attempt dragging anything up such a torrent as the Tunga would be vain ; but, after having seen the boats, and known that some of them have been actually navigated down the river, I have no doubt of its being practicable to carry down floats ; and on these perhaps many bulky articles of commerce might be transported."

[1] Herodotus notices, as one of the most remarkable things he had seen at Babylon, boats of a construction so exactly similar, that the description of one would precisely answer for the other, with the single difference of substituting willow for bamboo. These boats carried the produce of Armenia, and "the parts above Assyria," down the Euphrates to Babylon ; and each boat along with its cargo carried a few asses for the purpose of conveying the returns by a shorter overland route. Boats of the description noticed by Herodotus, although apparently unknown in Greece at that period, were in after ages commonly used in Italy on the Po : and in Britain in the time of Cæsar. Boats of the same materials but of different shape are used at this time in South Wales, and the north-west of Ireland ; in the former country they are named *corracle*, in the latter *corraigh*.—WILKS, i, 257.

[2] The mention of σάγγαρα occurs in the Periplus.

[3] From Kan. *ane katte*, both meaning dam, dyke, or embankment.

the large Talkad anicut, the lowest down on the Káveri, having been constructed a thousand years ago; while the most recent, with few exceptions, are not less than three centuries old. "The dreams which revealed to favoured mortals the plans of these ingenious works (says Wilks) have each their appropriate legend, which is related with reverence and received with implicit belief." The channels or *kálvés* thence drawn, meander over the adjoining tracts of country on either bank, following all the sinuosities of the ground, the total length running being upwards of 1,200 miles.[1]

There are no natural lakes in Mysore, but the streams which gather from the hillsides and fertilize the valleys are, at every favourable point, embanked in such a manner as to form series or chains of reservoirs, called tanks,[2] the outflow from one at a higher level supplying the next lower, and so on all down the course of the stream at a few miles apart. These tanks, varying in size from small ponds to extensive lakes, are dispersed throughout the country to the number of 38,080; and to such an extent has this principle of storing water been followed that it would now require some ingenuity to discover a site suitable for a new one without interfering with the supply of those already in existence. The largest of these tanks is the Súlekere, 40 miles in circumference. Other large ones are the Ayyankere, Madaga-kere, Masur-Madaga-kere, Vyása samudra, Rámaságara, Moti Taláb, &c., of which accounts will be found elsewhere (Vol. II).

The spring-heads called *talpargis* form an important feature of the hydrography of the north-east. They extend throughout the border regions situated east of a line drawn from Kortagiri to Hiriyur and Molkalmuru. In the southern parts of this tract the springs may be tapped in the sandy soils at short distances apart, and the water rises close to the surface. Northward the supply is not so plentiful. In Pavugada a soft porous rock has to be cut through before reaching the water, and in the other taluqs of the Chitaldroog District hard strata of rock have sometimes to be perforated. When the water is obtained, it is either conducted by narrow channels to the fields, or a *kapile* well is constructed, from which the water is raised by bullocks.

Mountain systems.—From the gigantic head and shoulders, as it were, of the lofty Nilgiri group, which commands the southern frontier, are stretched forth like two arms, in a north-west and north-east direction respectively, the Western and Eastern Ghat ranges, holding within

[1] The anicuts and channels are fully described under the respective rivers in Vol. II.

[2] *Kere* is the general name in Kannada, but *kola*, *kunte*, and other terms are applied to certain descriptions.

their mighty embrace the mountain-locked plateau of Mysore. The hills of this table-land, though rarely in continuously connected chains, arrange themselves into systems crossing the country longitudinally, in directions more or less parallel with the Eastern and Western Ghats according to their proximity to one or the other; and attaining their greatest elevation between 13 and 13½ degrees of north latitude, along the north of the watershed line dividing the Krishna and Kávéri river systems.

The best defined of these ranges is a belt, from 10 to 20 miles wide, running between the meridians of 77 and 77½, from the Biligirirangan hills as their western limit, through Kankanhalli northwards up to Madgiri, and on to the frontier by way of Pavugada and Nidugal. It separates the eastern from the northern and southern river-basins. On the west, a somewhat corresponding range, not more than 10 miles in width, runs north along the meridian of 75½ from Ballálráyan-durga up to beyond Shikarpur, having on its east the loop of the Baba Budans, projecting as it were like some Titanic bastion guarding the approaches to the Malnád or highland region formed by the congeries of hills and mountains which intervene between the range and the Ghats on the west.

Intermediate between the two internal ranges above described is placed a hilly belt or chain, with considerable intervals between its component parts, tending to the east on the south of the central watershed and to the west on the north of it, so as to form a very obtuse angle in traversing the centre of the country. Starting from the Wainad frontier at Gopalswami betta, between Gundlupet and Heggadadevankote, it passes by Seringapatam and Nagamangala to Chunchangiri, where, exchanging its easterly for a westerly course, it reappears to the west of Kibbanhalli in the Hagalvadi hills, and crossing in a continuous belt through the middle of the Chitaldroog District, quits the country to the north of Kankuppa.

In the northern section of the territory, where the distance between the Ghat ranges, and by consequence between the intermediate belts, continues to increase, the interval is occupied by minor ranges. Of these the most important is the Nandidroog range, commencing near the hill of that name and stretching northwards by Gudibanda to Penukonda and the Anantapur country. In the west, a similar medial chain, but of lower elevation, passes from the eastern base of the Baba Budans south of Sakrepatna, up by Ajimpur, the Ubrani hills and Basvapatna, between Honnali and Male Bennur, along the right bank of the Tungabhadra, to the frontier, where it meets that river.

Viewing the mountains as a whole, the Eastern and Western Ghat

ranges might be compared to the antlers of a stag, the branching tynes being represented by the intermediate parallel chains starting from the north of the central watershed and more or less connected by cross ridges along their southern extremities. The chief peaks of the western system are loftier than those of the eastern. Except on the verge of the Western Ghats, all the mountains throughout the country, it is believed, present their steepest escarpment more or less eastwards. In the west, Mulainagiri, and in the east, Nandidroog, are the highest elevations, and they are almost on the same parallel, or between 13° 23′ and 13° 24′, immediately north of the central watershed. The loftiest points just south of that line are Ballálráyan-durga in the west, and Sivaganga in the east, both situated between 13° 8′ and 13° 10′.

The table on the following page will serve to show the arrangement and altitude of the principal peaks in each system. The figures are mostly taken from the charts of the Great Trigonometrical Survey of India, supplemented from those of the Topographical Survey. Furnished at the summit with springs which yield an unfailing supply of water, most of these heights seem formed by nature for secure retreats. Hence there are few of the more prominent ones that have not been surrounded or capped with fortifications, often carried in long lines, with a vast expenditure of labour, along all the spurs and projections of the droog, forming strongholds with good reason deemed impregnable before the time when British artillery was directed against their walls. A particular account of the most interesting will be found under each District.

It may be useful to quote here the following most recently published opinion regarding the physical geography of this part of India:—"In the peninsular area the mountains are all remnants of large table-lands, out of which the valleys and low lands have been carved. The valleys, with a few local exceptions, are broad and open, the gradients of the rivers low, and the whole surface of the country presents the gently undulating aspect characteristic of an ancient land surface." "The Anamalai, Palni and Travancore hills, south of the Palghat gap, and the Shevaroy and many other hill groups scattered over the Carnatic, may be remnants of a table-land once united to the Mysore plateau, but separated from it and from each other by ancient marine denudation. Except the peculiar form of the hills, there is but little in favour of this view, but on the other hand there is nothing to indicate that the hill groups of the Carnatic and Travancore are areas of special elevation."[1]

[1] R. D. Oldham, "Manual of the Geology of India," 2nd edition (1893), pp. 2, 4.

WESTERN SYSTEM

75° 76°

15°

Chandragutti, 2,794

Hanuman betta, 2,507

Kalvarangan hill, 3,388

Hill at Sulekere, 2,695

Govardhangiri, 1,720

Karadi betta, 2,725

14°

Hanuman durga, 3,181

Kodachadri, 4,411

Ubrani hills, 2,891

Kavaledurga, 3,058

Baba Budan Range

Kaldurga, 3,183

Koppa durga, 2,960

Hebbe betta, 4,385

Kalhatti giri, 6,155

Lakke parvata, 4,662

Deviramman gudda, 5,906

Baba Budan giri, 6,214

Kondada betta, 3,207

Rudra giri, 5,692

Sakuna giri, 4,653

Mulaina giri, 6,317

Garudan giri, 3,680

Woddin gudda, 5,006

Varaha parvata, 4,781

Merti gudda, 5,451

Kudure mukha, 6,215

Ballalrayan durga, 4,940

13°

Kate gudda, 4,540

Karadi gudda, 4,523

Siskal betta, 3,926

Jenkal betta, 4,558

Murkan gudda, 4,265

Maharajan durga, 3,899

Devar betta, 4,206

Subrahmanya
or Pushpa giri, 5,626

Bettadpura hill, 4,389

12°

75 76°

l Chain

EASTERN SYSTEM

	77°		78°		
					15
Santigudda, 2,595 Jatinga Ramesvara hill, 3,469 Nunke Bhairava hill, 3,022					
hill, 2,721					
betta, 3,286					
g, 3,329	Nidugal, 3,772		Itikal durga, 3,569		
di, 3,803	Pavugada, 3,026				14
2,274					
	Midagesi durga, 3,376		Dokkal konda, 3,807		
3,226	Madgiri durga, 3,935	Gudibanda, 3,361		Mudimadagu, 4,528	
	Channarayan durga, 3,744				
	Kortagiri, 2,906	Hariharesvar betta, 4,122		Sunnakal, 4,229	
hills, 3,543		Kalavar durga, 4,749			
	Devaray durga, 3,940	Chanrayan betta, 4,762	Ambaji durga, 4,399		
		Nandi durga, 4,851	Rahman Ghar, 4,227		
	Nijagal, 3,569	Brahmagiri, 4,657			
		Dibgiri		Kurudu male, 3,312	
	Sivaganga, 4,559	Halsur betta, 3,341	Kolar hills, 4,026		
	Bairan durga, 3,499				
giri, 3,221	Hutri durga, 3,713				13°
	Savan durga, 4,024		Tyakal hills, 3,704	Betrayan konda, 3,006	
	Hulyur durga, 3,086				
		Bannérghatta, 3,271		Yerra konda 3,359	
	Ramgiri, 3,066				
	Sivangiri, 2,931				
	Mudvadi durga, 3,131				
	Banat mari betta, 3,422				
	Kabbal durga, 3,507				
lurga, 3,589					
3,579					
		Koppa betta, 2,821			
, 3,190					
ocks, 2,882					
, 2,697					
i betta, 3,489	*Biligirirangan Hills*				12
	Biligirirangan betta, 4,195				
	Matpod hill, 4,969				
	Punajur hill, 5,091				
mi hill, 4,770					
iri Group					
tta, 8,760					
	77°		78°		

GEOLOGY[1]

The great ranges of the Western and Eastern Ghats, together with the intervening table-lands, may be regarded as part of one magnificent elevation of Plutonic rocks by a succession of efforts, during a period which may be termed Plutonic, breaking up the hypogene schists and in some instances uplifting aqueous beds of a more recent origin. The true general direction of this elevation is nearly N. 5° W, though the apparent directions of the lateral chains on its flanks are to the east and west of north respectively.

The surface of the table-lands between these chains has a general inclination easterly by south towards the Bay of Bengal, into which the principal rivers empty themselves. This gentle inclination, often assisted by cross lines of elevation, determines the great drainage lines of the country. The singular appearance of the detached hills and clusters of hills, which above the Ghats are seen abruptly starting up from the flat plains with little or no *tali*, have been sometimes compared to a table with teacups here and there reversed on its surface, a not inapt though homely illustration.

The bare extensive surfaces of the granitic, trappean and hypogene rocks in Southern India afford on a grand scale *exposés*, not to be surpassed in any other portion of the globe, of the protean aspects under which these rocks present themselves. The very absence of those fossiliferous beds which so thickly encrust the surface of a great portion of Europe and many other parts of the world, is in itself a subject of interesting research ; and the geologist may in the peninsula of India advantageously study a huge and disjointed mass of the nether-formed

[1] Chiefly from articles by Captain Newbold, F.R.S., on the "Geology of Southern India."—(J. R. A. S. viii, ix, xii.)

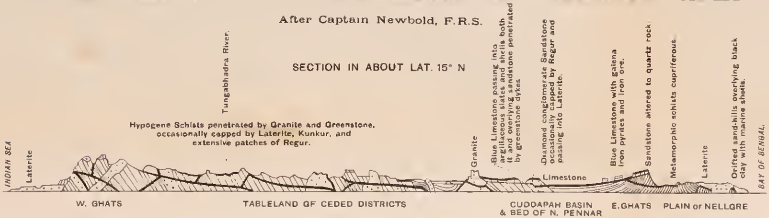
[NOTE.—When compiling the first edition, I applied to the Geological Survey of India for information on the geology of Mysore, and was informed in reply that, as the country had not been surveyed, nothing was known of its geology. Being thus thrown on my own resources, I discovered the articles from which this chapter was taken. Their value has since been recognized by the Geological Survey, for Mr. W. T. Blanford, in the Introduction to the first edition of the "Manual of the Geology of India" (p. lxxii), writes as follows :—

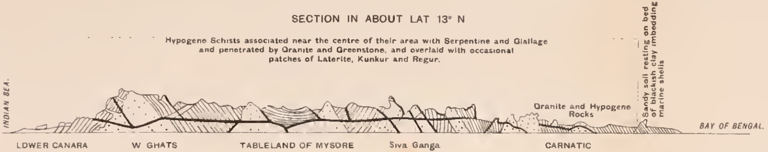
Newbold, 1844–1850.—This account refers to the southern part of the Peninsula alone ; but it is the work of one of the best, if not actually the best, of the earlier Indian geologists ; and it has the peculiar advantage over all other summaries published up to the present time, that the author possessed an extensive personal acquaintance with the country described. . . . . Most of the observations recorded in the summary are admirable ; and altogether the paper is so valuable, that the neglect with which it has been generally treated is not easy to understand.]

To face page 13.

GEOLOGICAL SECTIONS IN THE LATITUDES OF BANGALORE AND OF THE NORTHERN FRONTIER.

After Captain Newbold, F.R.S.





John Bartholomew & Co. Edin^r

rocks which constitute the framework of our planet, and which here present themselves almost divested of integument, weathering under the alternations of a vertical sun and the deluging rains of the tropics.

Metamorphic Rocks.—Hypogene schists, penetrated and broken up by prodigious outbursts of plutonic and trappean rocks, occupy by far the greater portion of the superficies of Southern India. They constitute the general bulk of the Western Ghats from between the latitude of 16° and 17° N. to Cape Comorin; and from the northern base of the Eastern Ghats to their deflection at latitude 13° 20′ N. They are partially capped and fringed in the Western Ghats by laterite, and in the Eastern Ghats by sandstone, limestone and laterite. They form the basis of the valley of Seringapatam and of the table-land of Mysore.

The inequalities and undulations of the surface, though originating in the dislocations and flexures of the metamorphic strata at the periods of their upheaval, have been evidently modified by aqueous erosion and by the faster weathering of the softer members of the series,—such as mica and talcose schists,—the softer clay slates and shales; which, crumbling and washed away, have left their harder brethren standing out in relief on the face of the country. Where we see gneiss, hornblende schist and quartzite rising in parallel ridges separated by valleys, we generally find the valleys occupied by the softer members of the series, often deeply covered with debris from the ridges.

Where gneiss rises above the general level of the surrounding plain, its elevations may be distinguished from those of granite, which the hills of thick-bedded varieties of gneiss sometimes assimilate, by their greater continuity and uniformity of altitude; their tendency to a smooth dome-shaded outline; and greater freedom from precipices and disrupted masses. Near lines of plutonic disturbance, however, these distinguishing marks are less perceptible.

Elevations of mica and talcose schists obtain, generally, a less altitude than those of hornblende or gneiss; and have a more round-backed and smoother contour on the whole. Yet the outline in detail is jagged, owing partly to these rocks weathering in larger, more angular or less concentric fragments, often leaving abrupt steps and small precipices. Hornblende and gneiss are seen rising, as in the Western Ghats and the Nilgiris, to the height of 8,000 feet above the sea's level. The former is recognized by its bold sharp ridges, often precipitous, but rarely presenting conical peaks.

Hills composed entirely of actinolite or chlorite schist are seldom

met with ; those of quartzite have long crest-like outlines, often running smoothly for some distance, but almost invariably breaking up into large, angular masses, sometimes cuboidal : the sides of the crests are usually precipitous. Hills of clay slate are distinguished by a smooth, wavy outline, separated by gently sloping valleys. Outliers or detached hills of this rock are usually mammiform. But, as before remarked, all these normal crystalline rocks, when near lines or foci of plutonic disturbance, frequently undergo great changes in physiognomical aspect ; and in lieu of the smoothly rounded hills of clay slate, and its gently sloping vales, smiling with fertility, we behold it cleaved into sterile, rugged ravines and rocky precipices.

Gneiss is usually found lowest in the series : next to it mica and hornblende schist, actinolite, chlorite, talcose and argillaceous schist, and crystalline limestone, in due succession : but to this rule there are numerous exceptions. All these rocks, except crystalline limestone, have been observed resting on granite without the usually intervening gneiss. The strata are often violently contorted or bent in waving flexures, particularly in the vicinity of plutonic rocks ; and much irregularity occurs in the amount and direction of dip throughout the hypogene area. In the Western Ghats it is usually easterly, and at angles varying from 10° to 90°. At the summit of the Ghats near the falls of Gersoppa, the gneiss dipped at an angle of 35° to the N.E.

But the hornblende schists do not always dip from the plutonic rocks —in many instances the dip is towards them : a fact indicating that the strata have been disturbed at some previous period, or that they may have suffered inversion ; which is known to be the case in beds of more recent origin. While the dip of the two great lines of elevation, viz., the East and West Ghats, is generally westerly and easterly, or at right angles with the direction of the strata, that of the minor cross ranges is usually southerly. Numerous irregularities and exceptions, however, to this general rule occur, particularly near the northerly and southerly great synclinal line of dip on the table-lands between the Eastern and Western Ghats, and near localities where it is traversed by the cross lines of elevation. The intrusion of trap dykes has also caused much diversity in the dip. These irregularities will always prove obstacles in tracing out with accuracy the synclinal dip line between the Eastern and Western Ghats.

Gneiss and *hornblende schist* are by far the most prevalent rocks of the series : to gneiss the other members may be termed subordinate. Near its contact with the granite it commonly assumes the character of what has been styled granitoidal gneiss, losing its stratified appearance, and not to be distinguished in hand specimens from granite. Spherical

and oval masses of granite, resembling boulders, are sometimes observed impacted in the gneiss. Veins of reddish compact felspar, felspar coloured green with actinolite, epidote or chlorite, with and without quartz; also of milky quartz with nests of iron ore, mica and hornblende are very common in gneiss: also dykes and veins of granite. All these veins are of older date than the intrusion of the greenstone dykes which invariably sever them. Particular varieties of gneiss prevail in different districts. These rocks not only abound in nests and veins of rich magnetic and oxidulated iron ore, but in thick interstratified beds and mountain masses of these minerals.

Mica schist is found sparingly distributed over the whole of the hypogene area in thin beds. It is found in the greatest abundance and purity in the western parts of Mysore. A vein of granite in it is rare, though abounding in those of quartz. *Talcose*, *chloritic*, and *actinolitic schists* are still more sparingly distributed: the first is seen in the west of Mysore. Fine varieties of actinolitic schist occur in the Western Ghats at the falls of Gersoppa; and it is pretty generally distributed in thin beds over Mysore. *Hornblende schist* ranks next to gneiss in extent and thickness of beds, and is seen washed by the sea at the bases of the Eastern and Western Ghats, forming some of the loftiest peaks of the latter and supporting large level tracts of table-land. This rock varies from the compact structure of basalt to the crystalline texture of granite, and to that of porphyry, and may be seen from laminæ of a few lines in thickness, passing into beds forming mountain masses. The principal constituent minerals are hornblende and felspar. Quartz, garnet and mica are frequently mixed. Large beds of *compact felspar*, generally of a pinkish hue, with a little quartz and a few scales of mica, quartzite and milk quartz, having a similar direction to that of gneiss, occur, forming low ranges of hills. *Clay slate* does not occupy a large surface of the hypogene area. It occurs at Chiknayakanhalli, Chitaldroog, and in parts of the Shimoga District.

Imbedded Minerals.—Chert is pretty generally distributed, also the common garnet; the latter occurs in the greatest abundance in the Eastern Ghats, but is also found in the Kempukal river at the Manjarabad Ghat; black garnet and tremolite occur in the granitoidal gneiss of Wurralkonda (Kolar District). Epidote and actinolite are found usually in quartz and felspar veins. Indianite occurs sparingly with corundum, fibrolite and garnet in gneiss and hornblende schist in the valley of the Kaveri. Corundum is found in Mysore in talc, mica, or hornblende schist associated with iron ore, asbestus, and sometimes indianite and fibrolite. It occurs imbedded in the rock in grains and crystals. Its principal localities are Gollarhalli near Chanraypatna,

Mandya near Seringapatam, Begur, Bannerghatta, Bagepalli and other places.[1] Fibrolite occurs but rarely with indianite and corundum. Kyanite occurs in gneiss with tremolite, pearl spar, bitter spar, almandine and staurolite. Steatite occurs in the talcose schists in the west of Mysore; as also potstone, in beds of considerable size and veins, and more or less dispersed over the whole hypogene area; occasionally associated with nephrite. Magnesite, an almost pure carbonate of magnesia, occurs in the vicinity of Hunsur. Mica is found universally diffused. In some parts of the Western Ghats and on the table-lands to the east, this mineral and talc are found in plates large enough for windows and lanterns, for which purpose they are used by the natives, as also for ornamental devices and for painting on. Chlorite is rarely found uncombined with felspar, silex, or hornblende. Nacrite or scaly talc is here and there met with. Adularia is found in the gneiss at some places. Albite or cleavlandite occurs occasionally throughout the gneiss districts, as also tourmaline or schorl, both black and green. Sulphate and sub-sulphate of alumina are occasionally found in thin incrustations and efflorescences between the layers of the soft ferruginous slates into which the hornblende and mica schists pass.

Iron pyrites or sulphuret of iron is distributed in small proportions in the hypogene rocks; but the oxides, both magnetic and hæmatitic, exist in extraordinary abundance, forming masses and large interstratified beds in the mountain chains. In gneiss these ores frequently replace hornblende and mica; alternating with quartz in regular layers. Magnetic iron ore with polarity is found in the massive state on the Baba Budan hills. Micaceous and specular iron ores are less common. A dark magnetic iron sand is usually found in the beds of streams having their origin among hypogene rocks, associated with gold dust and sometimes with menaccanite. Iron ore slightly titaniferous is found over the whole hypogene area. The black oxide of manganese associated with iron ore is found sparingly in the hills. Antimony occurs in the Baba Budan hills, and at Chitaldroog.

[1] Attention having been drawn to corundum as a valuable article of export, and on account of its possible use for the manufacture of aluminium, Mr. Petrie Hay, of Hunsur, has recently collected a quantity from villages to the south and west of that town. Very excellent crystals of yellowish corundum, with a brown weathered surface, were collected from the fields. Some tapering hexagonal prisms up to five inches in length, and a cubical piece of about four inches side, with a block weighing 300 lbs., were sent by him to the Madras Museum. Dr. Warth, of the Geological Survey, considers them of great importance as indicating the probability of a large and continuous yield. The quality of the quarried pieces is very little inferior to that of the crystals. The specific gravity of the large crystals was 4·02 and of the rock corundum 3·80.

Ores of silver have been said to occur in Belli Betta near Attikuppa.[1] Ainslie states that Captain Arthur discovered this metal in small quantities in Mysore, both in its native state in thin plates adhering to some specimens of gold crystallized in minute cubes, and mineralized with sulphur, iron and earthy matter, forming a kind of brittle sulphuretted silver ore.

Gold has long been found in the alluvial soil bordering on the Betaráyan hills in Kolar District. The geognostic position of gold in this and other localities appears to be in the primary schists, viz., gneiss, mica slate, clay slate, and hornblende schist, particularly near the line of their contact with granite or basaltic dykes, where we generally find the tendency to siliceous and metallic development unusually great. The gold is almost invariably discovered either in thin veins or disseminated in grains in the veins and beds of quartz, associated with iron ore and sometimes platinum, and alloyed with small proportions of silver and copper, or in the tracts of alluvial soil, beds of clay and sands, with the washings of primary rocks. Mining operations were carried on here by the natives from a remote period and abandoned. But since 1875 gold mining has been revived on a large scale by European enterprise, and what was virtually a desert waste has thus been converted into a populous and thriving industrial centre. The details of these operations will be found farther on under Industrial Arts.

Plutonic Rocks.—*Granite* prevails throughout the great hypogene tracts, sometimes rising abruptly from the surface of immense level plains in precipitous peaked and dome-shaped masses; sometimes in low steppes; sometimes in great heaps of amorphous masses; at others with sharp outlines, obscured and softened down by a mantle of the hypogene schists which have accompanied its elevation. This latter occurs most frequently in continuous mountain chains, such as the Ghats; but to view this rock in all the boldness of its true physical contour, we must approach the detached ranges, clusters, and insulated masses that break the monotony of the table-lands. Here we find but little regularity in the direction of elevation. In many clusters the granite appears to have burst through the crystalline schists in lines irregularly radiating from a centre, or in rings resembling the denticulated periphery of a crater.

The most remarkable of the insulated clusters and masses of granite on the table-land of Mysore are those of Sivaganga, Sávandroog,

[1] But Mr. Bruce Foote, of the Geological Survey, reported in 1887 as follows:—"I searched the hill most carefully and could not find the slightest trace of any ore of silver."

Hutridroog, Nandidroog, Chandragutti, and Chitaldroog. The rock of Nandidroog is almost one solid monolithic mass of granite, rising 1,800 feet above the plain and upwards of 4,800 feet above the sea; that of Sivaganga is nearly as high. These masses have usually one or more of their sides precipitous, or at such an angle as to be inaccessible except at few points. Most of them, like that of Sávandroog, are so steep as to admit of little vegetation, and present surfaces of many thousand square feet of perfectly naked rock, in which the veins and mineralogical structure are beautifully laid bare to the eye of the geologist.

It is not to be understood that granite is to be met with only in this abrupt amorphous form. On the contrary, it is sometimes found in immense undulating layers like lava, rising little above the general level of the country, separated by fissures and joints, and running for a considerable distance in a given direction like a regular chain of hills. The horizontal fissures often impart a pseudo-stratified appearance, and when crossed by others nearly vertical, give the whole the semblance of some huge wall of cyclopean masonry. The cuboidal masses composing these walls weather by a process of concentric exfoliation into spheroids. This process occurs often on a grand scale, and the exfoliated portions compose segments of circles of many yards radii. This decay of lofty granitic masses produces some of the most picturesque features of an Indian landscape; its strange columnar piles, trees, and logging stones, which far excel those of Dartmoor in grandeur and in the fantastic forms they assume. Some of these piles are held together in the most extraordinary positions, and the blocks composing them are found connected by a felspathic siliceous and ferruginous paste, the result of the decay of the upper masses, washed down and deposited around the joints by the action of the rain. There they stand; some tottering on their base, leaning over and threatening every instant to topple down upon the unwary traveller; others erect, amid a ruin of debris at their feet,—silent monuments of the process of the surrounding decay. Sometimes the summits of the higher elevations are composed of immense monolith peaked masses of granite, which split vertically; the separated portions are often known to descend from their lofty position with the rapidity and thunder of an avalanche. As the rocks waste from the summit, at their base will be usually observed a tendency to a re-arrangement of the component particles of the rock going on in the debris there accumulated. At Chitaldroog may be seen, at the base of a granite cliff which tops one of the hills, a porphyritic-looking mass thus formed of a reddish clayey paste, imbedding reddish crystals of felspar.

Almost every variety of this rock is found, but the prevailing granite is composed of felspar, quartz, mica and hornblende. Quartz, felspar and hornblende, the syenite of some mineralogists, is also common, and runs into the ordinary granite. That beautiful variety called protogine, in which talc, or chlorite, or steatite replaces the mica, is not very common in India, but is met with in a few localities in the west of Mysore. In all these cases chlorite and talc are the replacing minerals, the former predominating. Pegmotite, granite composed of quartz and felspar, is frequently met with ; but the variety called graphic granite is rare. Schist granite never occurs as a mountain mass, but is found in veins or patches imbedded in ordinary granite. The same may be said of actinolitic granite, or granite in which actinolite replaces mica. The latter usually is most frequent in hornblendic granite, and the actinolite passes by insensible gradations into hornblende. The felspar of actinolitic granite is usually flesh or salmon-coloured. Porphyritic granite, or granite having large crystals of felspar imbedded in ordinary or small-grained granite, is common. The rock of Sávandroog affords a good example of the prevailing variety. It is composed of a granite base of felspar, quartz, mica and hornblende, imbedding long pale rose-coloured crystals of felspar. Fine granite porphyries are less frequently met with : a beautiful specimen occurs in a large vein or dyke which traverses the gneiss in the bed of the Kávéri at Seringapatam, nearly opposite the sallyport close to which Tipu was killed. It is composed of a basis of compact reddish and salmon-coloured felspar and a little quartz, imbedding lighter-coloured crystals of the same, with needle-shaped crystals of green tourmaline.

The great prevalent mineralogical feature in the granite of Southern India is its highly ferriferous nature. The mica and hornblende is frequently replaced by magnetic iron ore in grains, veins, and beds ; and sometimes by fine octohedral crystals of the same, with polarity.

Most of the minerals and ores described as occurring in gneiss are also found in granite.

The ordinary granite is traversed by veins of granites both finer and larger grained : the former pass into eurite, a rock in which all the component minerals of granite are mingled together in one almost homogeneous paste. The minerals composing the larger grained veins are often in a state of segregation and crystallization. The mica, instead of being scattered in minute scales throughout the substance of the rock, is sometimes collected in large plates nearly a foot in length (used by natives for painting on) ; the quartz in large amorphous nodules, or hexahedral pyramidal prisms of equal length ; and the felspar by itself

in reddish layers and beds. The veins and beds of felspar are usually reddish, and penetrated by fissures, which give a prismatic structure: these fissures are often lined with compact felspar, coloured by actinolite, or chlorite, or with drusy crystals of the former mineral, which is also found in nests. Milky quartz is segregated into large beds forming chains of hills, usually containing nests and seams of iron ore, rock crystal, and crystals of amethystine quartz. Both oval and lenticular nests of hornblende and mica occur in granite.

Granite is seen in veins penetrating the hypogene schists. Good examples occur near Seringapatam. In many situations granite appears to have broken through the earth's crust in a solid form; as is evident from the sometimes unaltered and shattered condition of the strata immediately in contact.

Eurite is found throughout the granite and hypogene tracts, but more frequently among the latter rocks, with which it often has all the appearance of being interstratified; in the granite it occurs in dykes. The eurite of Seringapatam may be regarded as a type of the petrosilex eurites. It sometimes passes into eurite porphyry, imbedding distinct crystals of laminar felspar. *Diallage,* euphotide or gabbro, occurs at Banavar, about eight miles westerly from Bangalore, associated with gneiss and mica schist. It there presents itself in low elevations, consisting of angular rough masses of the diallage rock, half-buried in a detritus the result of its own disintegration. The masses have not the slightest appearance of stratification; but are divided by fissures, like granite, into cuboidal blocks. The rock is composed chiefly of diallage and felspar; the colours of the former varying from light and dark grey to greyish green and bright green. The felspar is white and greyish white; sometimes in distinct crystals, but generally confusedly aggregated. The general colour of the rock is light grey and greenish grey. The diallage at Banavar has more the appearance of a dyke or vein in the hypogene strata than of an interstratified bed; but no natural section of the junction line of the two rocks presents itself.

Serpentine.—Near Turuvekere a dark crystalline rock occurs, composed of a dark grey or black talcose paste, imbedding numerous small black crystals of a mineral containing a large proportion of iron, being strongly attracted by the magnet. It bears a beautiful polish; the surface exhibiting, on close inspection, in the dark shining paste, still darker spots occasioned by the magnetic crystals. It was quarried by the sovereigns of Mysore for architectural purposes, and forms the material of the beautiful pillars which support the mausoleum of Haidar at Seringapatam. This rock has been mistaken for basaltic greenstone,

but it may be a bed of massive ferriferous potstone—here common in the talc schist—elevated, indurated, and altered by one of the basaltic dykes that traverse the rocks in the vicinity. Geologically viewed it has all the characters of a serpentine; and mineralogically it resembles the ferriferous serpentine or ophiolite of Brongniart, which consists of a magnesian paste imbedding disseminated grains of oxidulated iron.

Volcanic Rocks.—*Basaltic greenstone* is universally distributed. It prevails in hypogene areas, diminishes in those occupied by the diamond-sandstone and limestone, and totally disappears in districts covered by laterite and deposits of a more recent epoch. It is most developed in the stretch of table-land between Bangalore and Bellary. It never occurs in continuous overlying sheets like the newer trap, but penetrates in dykes the rocks just described, up to the age of the laterite. These dykes often terminate on reaching the surface of the rock, or before reaching it; while others project from the surface in long black ridges, which, originally like a wall, have since tumbled into both globular and angular fragments by disintegration. Most of the blocks usually remain piled up on the crests of the elevations, while others have lodged on their sides or rolled down to their bases. Many of these blocks have a peculiar metallic or phonolithic sound when struck; the well-known "ringing stones" west of Bellary afford a good example. These black bare ridges of loose stones, standing out in relief against the light-coloured granite or gneiss rocks, add another striking feature to the landscape of the plutonic and hypogene tracts. They often cross the country in a thick network, particularly between Nandidroog and Bagepalli.

In many cases the protrusion of the basaltic greenstone above the general surface of the imbedding rock appears to have been occasioned by the weathering of the latter from its sides. The greenstone thus left unsupported and exposed to atmospheric action soon breaks up by the process of fissuring and concentric exfoliation. In a few instances it appears to have been forced in a semi-solid state beyond the lips of the rent in the rock without overlapping the rock, but none of these projecting dykes have remained in that solid continuous wall-like state in which we see the prominent dykes of Somma or the Val del Bove. Their height above the general level of the country rarely exceeds eighty feet. The direction of the main dykes appears generally to coincide with that of the elevation of the mountains; but if we trace any dyke, the general direction of which in a course of many miles may be north and south, we shall find it to zig-zag and curve in various directions at different parts of its course. Fragments of granite and gneiss, both angular and

of a lenticular form, are sometimes entangled and imbedded in the basalt; and have been mistaken for veins or nests of these rocks. It is evident that, in many instances, the granite and hypogene rocks were solidified prior to the great eruptions of basalt that burst up from below into their seams and fissures, and that the molten fluid imbedded all loose fragments of rock, &c., lying in them. It is probable that many of the fissures themselves were caused, or enlarged, as seen in modern volcanoes, by the expansion of the molten basalt and its gases from below, while struggling for a vent.

The lithologic structure of this rock is as protean as that of granite. In the centre of large dykes we usually find it crystalline and porphyritic; and nearer the edges, less crystalline and more compact; in fact, every gradation of amphibolitic and augitic rocks, from basalt to melaphyre, in the distance of a very few paces. Near the sides, in the compact varieties, may be seen needle-shaped crystals of augite, glancing in confused arrangement here and there in the close texture of the basalt; while a little nearer to the centre the augite almost disappears, and is replaced by fine large crystals of hornblende, and sometimes a few scattered scales of mica. Near the line of contact with gneiss, the basalt often loses its dark colour, and becomes of a faint green, like some varieties of eurite or serpentine, imbedding iron pyrites. This faint green eurite is also seen as a thin vitreous and vesicular enduit on its surface, like the scoriaceous lava found on the surface of the dykes of Etna. The cavities sometimes contain a yellowish-brown powder, which becomes magnetic before the blow-pipe; or small crystals of epidote: in one specimen was found prehnite. The surface of the compact basalt in the dykes is often scored by small fissures, which, as in the Vesuvian dykes, divide the rock into horizontal prisms and run at right angles to the cooling surfaces. All the darker varieties of basaltic greenstone melt into a black or dark-green coloured glass or enamel; and affect the magnetic needle. They are composed of felspar, hornblende and augite, in varying proportions, and occasionally hypersthene.

The minerals most common to these are, iron pyrites, garnets, epidote, and actinolite. These minerals distinguish them from the newer trap, which abounds in zeolites, calcedonies and olivine.

The greenstone occasionally assumes the prismatic columnar forms of the newer basalts, or rather approaches to this structure; thin layers of carbonate of lime often intervene between the joints, and between the concentric layers of the globular greenstone. In many instances the basalt has a fissile structure, which, when intersected by joints, form prisms well adapted for building purposes. In some cases, under the

hammer it breaks into rhomboidal fragments, the joint planes of which are marked superficially with dark brown or blue dendritic appearances on a pale yellow or brown ground.

Rocks altered by Dykes.—Granite and gneiss in contact with a dyke usually become compact, or tough, or friable; the felspar crystals lose their brightness and a portion of the water of crystallization, become opaque and of porcelain hue; the mica is hardened and loses its easily fissile lamellar character. In gneiss it may be seen replaced by minute crystals of tourmaline, epidote and garnet, as near Chanraypatna. Limestone is converted into chert, or becomes siliceous; sandstone into quartz; and clay slate into basanite and jasper.

In districts most intersected by dykes a general tendency to crystalline and metallic development will be remarked, as well as an increase in the deposition of saline and calcareous matter, apparent in extensive layers of kunker, and efflorescences of the carbonate, muriate, and sulphate of soda. The fissures through which the springs charged with these minerals rise, were originally caused, perhaps, by the same disruptive forces that opened vents through the earth's crust to the molten basalt: and it is not improbable that these minerals and sulphates have their origin in causes connected with these ancient subterranean volcanic phenomena. Frequently no alteration is to be traced in the rocks in contact with dykes; a circumstance readily accounted for when we reflect that the temperature of the injected rock is liable to great variation. In certain localities, indeed, the basalt appears to have been reciprocally acted upon by the rock it has traversed.

Aqueous Rocks.—*Sandstone and Limestone.*—Resting immediately on the hypogene and plutonic rocks are found beds of limestone, sandstone, conglomerate, argillaceous, arenaceous, and siliceous schists. Next to the hypogene schists, and the associated plutonic rocks, these limestone and sandstone beds occupy perhaps the greater portion of the area north of a line drawn through Sira to the west. They are most frequently observed exposed in the vicinity of the great drainage lines of the country and occur in irregularly-shaped patches, separated usually by broad and apparently denuded zones of the subjacent hypogene and plutonic rocks.

The tracts occupied by the limestone and sandstone beds present a diversified aspect, sometimes flat and monotonous, and at others, near lines of plutonic disturbance, bare, rugged and picturesque. The limestone in some situations has evidently been denuded of the usually superjacent sandstone, dislocated, and elevated several hundreds of feet above the general level of the surrounding country in regular

ranges, and often in highly-inclined strata. Caps of sandstone, though in such cases often wanting, are sometimes seen still covering the limestone peaks. The outline of these limestone ranges usually presents long, flattish-topped ridges, whose sides and summits are not unfrequently covered with detached angular blocks of the rocks, with a grey, weathered, and scabrous exterior, resembling that of the mountain limestones of Europe.

The sandstone, where undisturbed by plutonic intrusion, occurs in low, flat, wall-like ranges, rising at an almost similar level, rarely exceeding 500 feet from the surface of the surrounding country, supporting table-lands of some extent and evidently once continuous. It is often intersected by deep fissures, extending from the summit of the rocks down to the base. When disturbed by plutonic force, the sandstone exhibits a striking contrast in its outline to the tame horizontal aspect it assumes at a distance from the axes of disturbance. It rises in bold relief against the sky in lofty rugged cross or hogbacked and crested hills, with precipitous mural ridges, which, rarely running at the same level for any distance, are interrupted by portions of the same ridge, thrown up at various angles with the horizon in steep and often inaccessible cliffs. When it crests the hypogene rocks, the lower part of the elevation is often composed of the latter to the height of about 200 to 400 feet, the slope of which has usually an inclination of from 15° to 20°, while that of the cap of sandstone presents a steep or precipitous declivity varying from 45° to 90°, giving a decided character to the aspect and configuration of the mountains and ranges thus formed.

The hills of arenaceous schists are to be recognized from the more massive sandstones by their undulating, round-backed summits, and their buttressed and dimpled flanks; while those of the softer slates and shales affect the mammiform outline.

Both limestone and sandstone beds, there is little doubt, were formerly of greater extent than now, and owe much of their present discontinuity and scattered positions to the agency of plutonic disturbance and subsequent denudation. The tracts of country intervening between their areas are usually occupied by granitic and hypogene rocks.

Laterite occupies a large portion of the superficies of Southern India. It is found capping the loftiest summits of the Eastern and Western Ghats and of some of the isolated peaks on the intervening table-lands. Beds of small extent occur near Bangalore and Banavasi. That at Bangalore extends northerly towards the vicinity of Nandidroog. Hills of laterite are usually distinguished by their long, low,

flat-topped character, assimilating those of the trap and horizontal sandstone formations. The lands they support are, however, not so much furrowed as those of the sandstone by water channels, a circumstance ascribable to the drainage passing rapidly off through the pores of the rock. When capping detached rocks, the laterite usually imparts to the whole mass a dome-shaped or mammiform outline, or that of a truncated cone.

On the surface of table-lands it is spread out in sheets, varying from a few inches to about 250 feet in thickness, terminating on one or two sides in mural escarpments. Immense detached blocks, generally of a cuboidal shape, are often seen occurring on the flanks of the Western Ghats, and on the southern slopes of the Sondur hills, often separated and dislodged. The valleys intervening between ranges of laterite hills are generally winding, like those formed by the course of a stream, and flat-bottomed, particularly in districts where it overlies the newer trap.

The laterite varies much in structure and composition; but generally speaking it presents a reddish-brown or brick-coloured tubular and cellular clay, more or less indurated; passing on the one hand into a hard compact jaspideous rock, and on the other into loosely aggregated grits or sandstones, and into red sectile clays, red and yellow ochre, and white porcelain earth, plum-blue, red, purplish and variegated lithomarges. Sometimes it presents the character of a conglomerate, containing fragments of quartz, the plutonic, hypogene and sandstone rocks and nodules of iron ore derived from them, all imbedded in a ferruginous clay. The cavities are both vesicular, tubular and sinuous; sometimes empty, but in the lower portions of the rock usually filled, or partly filled, with the earths and clays above mentioned, or a siliceous and argillaceous dust, often stained by oxide of iron. A species of black bole, carbonized wood and carbonate of lime sometimes occur, but rarely, in these cavities. Minute drusy crystals of quartz not uncommonly line the interior. The walls separating the cavities are composed of an argillo-siliceous paste, often strongly impregnated with iron and frequently imbedding gritty particles of quartz. The oxide of iron prevails sometimes to such an extent as to approximate a true ore of iron, and the nodules are often separated and smelted by the natives in preference to using the magnetic iron ore, which is more difficult to reduce, from its greater purity. When the whole mass is charged with iron and very vesicular (not unfrequently the case) it might easily be mistaken for iron slag. The colour of the *parietes* separating the tubes and cells, which in the less ferruginous varieties is a light brick-red or purple, changes into a liver-

brown, having externally a vitrified or glazed aspect; while the surface of the interior cavities puts on iridescent hues. The walls of these cells are sometimes distinctly laminated.

The air-exposed surfaces of laterite are usually hard and have a glazed aspect, and the cavities are more empty than those in the lower portion. A few inches or more below the surface the rock becomes softer, and eventually as it descends so sectile as to be easily cut by the native spades, but hardens after exposure to the atmosphere. Hence it is used largely as a building stone in the districts where it prevails, and to repair roads. From its little liability to splinter and weather (time appears to harden it), it is a good material in fortifications. The accumulation of the clays and lithomargic earths in the lower portions of the rock, which absorb some of the moisture percolating from above, renders the mass soft and sectile. These earths doubtless existed once in the upper cavities of the rock, from which they have been gradually removed to the lower strata by the downward action of the water of the monsoon rains. They accumulate at various depths from the surface and form impervious beds, on the depressions of which the water collects, forming the reservoirs of the springs we often see oozing from the bases and sides of lateritic hills and cliffs. Some of the tubes and cavities are *culs de sac*, and do not part with their contents; but the generality have communication with those below them, either directly or indirectly.

Associated Minerals.—Nodular, reniform and pisiform clay iron ore occur pretty generally distributed. Large beds and nests of lithomargic earths, and white porcelain earths, are not uncommon.

Older Alluvium.—The designation of alluvium is here used in its extended sense to indicate certain beds of gravel and sand that are occasionally found covered by the regur deposit, and which occur in such situations as not to be accountable for by the agency of existing transporting powers; simply prefixing the term "older" to distinguish it from the alluvium now forming from the disintegration of rocks washed down by the rains and springs, and transported by rivers and local inundations.

In the valleys of the Bhima, Krishna, Tungabhadra, and other large rivers are occasionally seen beds of alluvial gravel elevated beyond the highest existing inundation lines. Some of these deposits may be ascribable to shifts from time to time in the course of the river's bed; a few to the action of rain in bringing down alluvium from the mountain sides; but the majority appear to have been accumulated under conditions not now in existence; probably, during the slow upheaval of the Western Ghats and plateau of the Dekhan, when the water

occupied a much greater extent than at present. In many places the rivers have cut their way through these deposits; in others, channels exist of rivers, where now no water flows, or but a diminutive streamlet. Thus the Moyar valley, which runs along the table-land of Mysore by the base of the Nilgiris, differs entirely from a common mountain glen. Though a mile or more in breadth at some points, yet it is rather a ravine or fosse cut in the plain and not hemmed in by mountains. It opens out into the lower plain of the Carnatic at the Gajalhatti pass: the sides are precipitous, and its bed very much like the deserted channel of a river. The only stream now flowing in it is the Moyar, which, even in the monsoon, does not fill one hundredth part of its breadth and height: yet this singular excavation, extending some thirty miles in length, is unquestionably a waterworn channel. It is no fissure; for its bed is quite solid and connected and composed of strata of the hypogene rocks.

Regur or Black Cotton Clay.—This singular deposit, which in sheets of considerable thickness covers at least one-third of Southern India, is less common in Mysore. The plains occupied by the cotton soil are in general marked by their horizontal sea-like surface and almost treeless aspect. It covers the kunker and gravel beds just described, and is generally seen as a surface soil; but if we examine the edges of great sheets they will generally be found to dip for some distance under the recent alluvium, which conceals and replaces them as a surface soil. It not only covers extensive plains, but the tubular summits of hills overlooking those of the sandstone and limestone, newer trap and laterite formations, far above the present drainage level of the country: it covers all rocks from the granite to the laterite and kunker, and often fills up depressions and chinks in their surface.

The purest regur is usually of a deep bluish-black colour, or greenish or dark greyish black. The quantity of iron it contains is not sufficient to account for the black colour of this soil, which may be partly attributed to the extractive or vegetable matter it contains. The regur is remarkably retentive of moisture; a property to which is ascribable much of its fertility. During the dry season, when the crops are off the ground, the surface of regur, instead of presenting a sea of waving verdure, exhibits the black drear aspect that the valley of the Nile puts on under similar circumstances, and which powerfully reminds one of the regur tracts of India. Contracting by the powerful heat of the sun, it is divided, like the surface of dried starch, by countless and deep fissures, into figures usually affecting the pentagon, hexagon and rhomboid. While the surface for a few inches in depth is dried to an impalpable powder raised in clouds by the wind and darkening the

air, the lower portions of the deposit, at the depth of eight or ten feet, still retain their character of a hard black clay, approaching a rock, usually moist and cold; when the surface dust has a temperature of 130°. In wet weather the surface is converted into a deep tenacious mud.

The purest beds of regur contain few rolled pebbles of any kind; the nodules of kunker we see imbedded have probably been formed by concretion from the infiltration of water charged with lime; and it is only near the surface that the regur becomes intermingled with the recent alluvium of the surrounding country, or in its lower portions, where it becomes intermingled with the débris of whatever rock it happens to rest on,—trap and calcedonies in trappean districts; granite, sandstone, pisiform iron ore and limestone, in the plutonic and diamond sandstone areas. It sometimes exhibits marks of stratification.

That the regur of India is an aqueous deposit from waters that covered its surface to a vast extent, there is little doubt: but it would be difficult to point out at the present day the sources whence it derived the vegetable matter to which in great measure it owes its carbonaceous colour, and the rocks from the ruins of which its remaining components were washed.

Kunker.—The calcareous deposit termed *kunker*[1] is irregularly distributed in overlying patches. No tract is entirely free from it, with the exception, it is said, of the summits of the Nilgiris. It occurs, however, at the height of 4,000 feet above the sea among the ranges on the elevated table-lands. It is most abundant in districts penetrated and shattered by basaltic dykes, and where metallic development is greatest. It is perhaps least seen in localities where laterite caps hypogene or plutonic rocks. It occurs filling, or partially filling, fissures and chinks in the subjacent rocks, in nodular masses and friable concretions in the clays and gravels above the rocks, and in irregular overlying beds, varying from a few inches to forty feet in thickness. It has been found at the depth of 102 feet below the surface of the surrounding country, prevails alike in granite, the hypogene schists, the diamond sandstone and limestone, and in the laterite: hence the springs which deposit it must bring up their supply of calcareous matter from sources deeper beneath the earth's crust than the limestone.

The older kunker is usually of a light brownish, dirty cream, reddish or cineritious grey tint; sometimes compact and massive in structure,

[1] A Hindustani word كنكر but of Sanskrit extraction, signifying a nodule of limestone or pebble of any other rock.

but more usually either of a nodular, tufaceous, pisiform, botryoidal, or cauliflower-like form. Its interior is sometimes cancellar, or slightly vesicular; but compact or concentric in the pisiform and nodular varieties. Its interior structure is rarely radiated. When compact it resembles the older travertines of Rome and Auvergne. It aggregates in horizontal overlying masses, usually intermingled with the soil without much appearance of stratification. It is broken up and used as a rough building stone in the bunds of tanks, walls of inclosures, &c., by the natives, and is universally employed to burn into lime.

In the banks of rivers it is often seen concreting in stalactiform masses round the stems and roots of grasses, which, decaying, leave casts ot carbonate of lime. This lime, held in solution and suspension by existing streams, mingling with the fine particles of sand and ferruginous matter in suspension, sets under water like pozzolana; and uniting the shells, gravel, sand, and pebbles in the bed and on the banks, forms a hard and compact conglomerate.

Its origin may be referred to the action of springs, often thermal, charged with carbonic acid, bringing up lime in solution and depositing it as the temperature of the water gradually lowered in rising up to the earth's surface or in parting with their carbonic acid.

Modern Alluvia.—Where regur does not prevail, the ordinary soils are distinguished by a reddish tinge, owing to the great prevalence of oxide of iron in the rocks of which they are, in great measure, the detritus. Patches of white soil occur, and are usually the consequence of the weathering of beds of quartz, or composed of kunker, which abounds so generally, and enters into the composition of almost every variety of soil. These white soils are characterized by sterility. In tracts of country shaded by eternal forests, for instance the Ghats, and sub-ghat belts, a dark vegetable mould prevails,—the result of the successive decay and reproduction of vegetation for a series of ages, under the stimulating alternations of excessive heat and moisture. In such regions, where unsheltered by forest and in exposed situations, the soil is either lateritic or stony according to the nature of the subjacent rock.

At the bases of mountain ridges we usually find an accumulation of large angular blocks, composed of the same rocks as the hills down whose declivities they have rolled in weathering. At a greater distance from the base in the plain, these are succeeded by pebbles, whose reduced size, mineral composition, and worn angles proclaim them to have travelled from the same source, diminishing in bulk the further we recede from the mountains, until they pass, by the gradations of grit

and sand, into deposits of a rich clay or loam. Such are the gradations generally to be traced in the modern rock alluvia, and which strikingly distinguish them from the vegetable soil of the forest tracts and the regur, which are often seen in the state of the greatest richness and fineness of composition at the very bases of the hills and resting immediately on the solid rock.

The alluvia brought down by the streams from the Western Ghats flowing easterly to the Bay of Bengal, are usually composed of silt, sand and gravel—detritus of the rocks over which they have passed: they almost always contain a considerable portion of lime derived from the springs which supply them, and from the limestone and kunker beds over which most of them flow. The alluvia of the rivers of the western coast are of a more carbonaceous and less calcareous character, owing to the greater absence of lime in the formation, and the dense forests and luxuriant vegetation which almost choke their passage.

During the hot season, when the surface of the alluvial sand in the beds of the rivers and rivulets is perfectly dry, a stream of clear water is frequently found at various depths below them, stealing along or lodging in the depressions of some impervious layer of clay or rock, to which it has sunk through the superincumbent sand. So well is this fact understood by natives, that in arid, sandy tracts, where not a drop of water is to be seen, they will often be enabled to water whole troops of horse and cattle by sinking wells a few feet deep through the sands of apparently dried-up rivulets.

The benefit resulting from the admixture of lime into soils consisting almost solely of vegetable, siliceous, or argillaceous matter, is too well known to be dwelt on here; and it is a remarkable and bountiful provision of nature in a country like Southern India, where limestone is so rarely seen in the rocks from which a great part of its soil is derived, that innumerable calcareous springs should be constantly rising through the bowels of the earth to impregnate its surface with this fertilizing ingredient.

The alluvia of Southern India are remarkable for their saline nature. The salts by which they are impregnated are chiefly the carbonate and muriate of soda, which prevail so much (particularly in mining districts) as to cause almost perfect sterility. The carbonate appears on the surface covering extensive patches, in frost-like efflorescences, or in moist dark-coloured stains, arising from its deliquescence in damp weather or by the morning dews. Where such saline soils are most prevalent there will be usually a substratum of kunker, or nodules of this substance, mixed with the soil; and there can be little doubt that their origin may

be referred to the numerous springs rising through the fissures or laminæ of the subjacent rocks, some charged, as already noticed, with carbonate of lime, and others with muriate of soda and sulphate of lime. The carbonate of soda, like the natron of Egypt, is the result of a mutual decomposition of the muriate of soda and carbonate of lime. It may be as well to remark that muriate of lime is invariably found in the saline soils of India, which are known to the natives by the term *chaulu*. The soda soil is used by the *dhobis*, or washermen, to wash clothes with, and hence is called washermen's earth; it is also employed by the natives in the manufacture of glass.

Both the carbonate and muriate of soda are found mingled in varying proportions, in white efflorescences, in the beds and on the banks of springs and rivulets.

Nitrous Soils.—Soils impregnated with nitre are found on and around the sites of old towns, villages, &c. Here a vast quantity of animal matter must gradually have been blended with the calcareous and vegetable soil: from their decomposition the elements of new combinations, by the agency of new affinities, are generated:—nitrogen from the animal, and oxygen, &c., from the vegetable matter. The nitric acid thus produced combines with the vegetable alkali, forming the nitrate of potass, while its excess, if any, combines with the lime, forming a deliquescent salt,—the nitrate of lime. The affinity lime has to nitrogen and oxygen materially assists the formation of the acid by their combination. The natives of India, in their rude manufactories of saltpetre, act upon these principles without being aware of their rationale. Having collected the earth from old ruins, or from places where animals have been long in the habit of standing, they throw it into a heap mingled with wood ashes, old mortar, chunam, and other village refuse; and allow it to remain exposed to the sun's rays and to the night dews for one or two years, when it is lixiviated. The salt obtained is not very pure, containing either the muriate and sulphate of soda or potash, or nitrate and muriate of lime.

Nitrous soils are easily recognized by the dark moist-looking patches which spread themselves irregularly on the surface of the ground, and by capillary attraction ascend walls of considerable height. They are more observable in the morning before the sun has had power to dissipate the dews.

Auriferous Alluvia.—The alluvium brought down by the rivers flowing easterly towards the Bay of Bengal is usually silt, sand, or calcareous matter,—detritus, as before observed, of the rocks over which they pass; while that of the rivers flowing westerly is of a more carbonaceous character. Most of these alluvia are auriferous, particularly those

of the Malabar and Canara coasts, but grains of gold are also found in considerable abundance in the alluvial soils of Mysore.

Betmangala lies on the eastern flank of the principal gold tract, which, according to Lieutenant Warren, who examined this district in 1802, extends in a north-by-east direction from the vicinity of Budikote to near Ramasamudra. The gold is distributed in the form of small fragments and dust throughout the alluvium covering this tract.

At Markuppam, a village about 12 miles south-west from Betmangala, were some old gold mines, worked by Tipu without success. The two excavations at this place demonstrated the great thickness, in some parts, of these auriferous alluvia. They were 30 to 45 feet deep respectively. There can be little doubt that the auriferous black and white stones in these mines were fragments from the gneiss, granite and hornblende schist which base this auriferous tract, and constitute the singular ridge which runs through it in a north and south direction, and which may be regarded as having furnished most of the materials of the reddish alluvium on its east and west flanks, and therefore as the true matrix of the gold. The orange-coloured stones were caused by the oxidation of the iron in the mica.

This auriferous range on the table-land of Mysore may be traced to the Eastern Ghats, southerly, by the hill fort of Tavuneri, to the south of Kaveripatnam matha in the Amboor valley. Two passes, however, break its continuity near Tavuneri. To the north it appears to terminate at Dásarhosahalli ; though the line of elevation, taking a gentle easterly curve, may be traced by the outliers of the Bétaráyan hills, Amani konda or Avani, Mulbagal, Kurudu male, Rájigundi to Ramasamudra in the Cuddapah collectorate, a little west of Punganur.

Dunes.—Sand dunes are not confined to the coasts, but are seen on the banks of the larger rivers in the interior, as at Talkád on the Kávéri. During the dry season, the beds of these rivers, deriving but a scanty supply of water from perennial springs, usually present large arid wastes of sand. These are acted upon by the prevailing westerly winds, which blow strongest during the months of June, July, and August, and raise the sand into drifts, which usually advance upon the cultivation in an easterly direction. The advance of these moving hills is usually very regular where no obstruction presents itself, such as high bushes, trees, hedges, &c., which are often planted by the natives purposely to arrest the progress of these invaders on their cultivated lands. The sand is often held together and retarded by the embraces of the long fibrous plants that grow up and are interwoven with its layers. (*See* account of Talkád, Vol. II.)

TRAVERSE NOTES.

From the Bisale Ghat to Betmangala, by Captain Newbold, F.R.S.

At the western foot of the pass, and along the base of the Subrahmanya hill, hornblende rock containing garnets and dark-coloured mica occurs, with veins of a very large-grained granite composed of white quartz, red and white felspar, and silvery mica in very large plates : gneiss is seen on the steep face of the ghat, and hornblende rock, often coated with the red clay and its own detritus. This formation continues to the summit of the ghat. At Uchchangi the formation is generally gneiss. One of the hills of this rock is crested by hornblende rock in large prismatic masses. Patches of laterite occur covering these rocks in various localities, and a few bosses of granite.

Near Kenchamman Hoskote I crossed the Hemavati, one of the principal tributaries to the Kávéri, in a canoe. It is about fifty paces broad, with steep banks of clay, silt, and sand with mica. Near the village, mammillary masses of gneiss project from the red alluvial soil. This rock has here lost much of its quartz, and is of that variety of thick-bedded gneiss which in a hand specimen might pass for granite ; the felspar is often of a reddish tint. Laterite is found in this vicinity a little below the surface in a soft sectile state. At Hassan gneiss and hornblende schist are still the prevalent rocks. Talc slate with layers of a fine greenish potstone interstratified also occurs. The mica in the gneiss near Gráma is sometimes replaced by talc and passes into protogine.

After exploring the corundum pits of Gollarhalli, I passed through Chanráypatna and Bellur to Hutridurga. Granite, protogine, gneiss, talcose and hornblende schists, penetrated occasionally by trap dykes, constitute the formation, overlaid here and there by patches of laterite or kunker on which rests the surface soil. The latter is usually reddish and sandy. Sometimes these deposits are wanting, when the substratum consists of the gravelly detritus of the subjacent rocks. At Belladaira a large bed of ferruginous quartz occurs. The mass of granite on which stands the fortress of Hutridurga is somewhat saddle-shaped, and runs nearly north and south ; it terminates abruptly at either extremity. The northern extremity, crowned by the citadel, is a sheer scarp of rock nearly 200 feet high ; its base is rugged with large precipitated masses. The granite is similar to but less porphyritic than that of Sávandurga.

From Hutridurga I proceeded to Magadi, and thence ascended the stupendous mass of Sávandurga. The country for a considerable distance is wild and woody, abounding with low hills and rocks, among which a porphyritic granite prevails. A magnetic iron sand is found in the beds of almost all the rivulets. I ascended the rock from the north-east side. The major axis of the mass runs nearly east and west, and is crossed at right

angles by a profound fissure, which cleaves the rock from summit to base into two distinct portions, both fortified, so as to be independent of the lower fort It is entirely composed of a granite, which from small-grained may be seen passing into the large-grained and porphyritic varieties. Some of the crystals of reddish felspar on the Karidurga were nearly two inches long, imbedded in small-grained reddish granite.

The principal rock at Távarekere is gneiss, with fragments of iron-shot quartz, green actinolitic quartz, felspar, fragments of hornblende schist, gneiss, granite and basaltic greenstone scattered over the face of the country, and occasionally patches of kunker. Near Bánávar I found diallage rock, projecting in large, angular, scabrous blocks from the top and sides of a low elevation. The great mass of the rock was chiefly white felspar and quartz. The crystals of diallage were well defined, and passed from dull olive-grey shades to the lively decided green of smaragdite. There was more quartz in this diallage rock than is seen usually in the euphotides of Europe; and the external aspect of the blocks was almost trachytic in its roughness. Not far hence, the gneiss with which the diallage is associated, apparently as a large vein, loses its mica, which is replaced by minute silver scales of graphite.

Gneiss is the prevalent rock about Bangalore, penetrated by dykes of basaltic greenstone, and occasionally by granite, as is seen near the petta and adjacent fields. The granite in these localities splits into the usual cuboidal blocks or exfoliates into globular masses. It often contains hornblende in addition to mica. The gneiss strata, though waving and contorted, have a general north and south direction, and often contain beds of whitish quartz preserving a similar direction. The strata are nearly vertical. Approaching Bangalore from the north-west, a bed of laterite is crossed, forming a hill (Oyáli dinne) on which stands a small pagoda. This bed extends northerly in the direction of Nandidroog, where laterite also occurs. In other situations, covering the gneiss and granite, a reddish loam is usually found, varying from a few inches to twenty feet in depth, containing beds of red clay, used in making tiles, bricks, &c.; the result evidently of the weathering of the granite, gneiss, and hornblende rocks. A similar formation continues to Kolar. The gneiss is occasionally interstratified with beds of hornblende schist. Granite, gneiss, and hornblende are the prevailing rocks at Betmangala. About eight or nine miles east of this the Mysore frontier is crossed into South Arcot. Kunker occurs on the banks of the rivulet near the village, both on the surface and in a bed below the alluvial soil. Efflorescences of muriate of soda are also seen in the vicinity.

From Seringapatam to Coorg, by the same.

From Seringapatam my route lay westward over a stony, kunkerous, uneven, and rather sterile tract to the banks of the Lakshmantirtha. The formation at Hunsur is a micaceous gneiss with veins of quartz, and beds of the same mineral evidently interstratified with the layers of gneiss. These beds, on weathering, leave the surface-soil covered with their angular and

rust-stained fragments. Glimmering hornblende rock, veined with milky quartz, and a pale flesh-coloured felspar alternate with the gneiss. The outgoings of two or three dykes of basaltic greenstone are passed on the roadside. The surface of the country from Seringapatam gradually rises as it approaches the Ghats.

The country between Hunsur and the Ghats is a succession of rocky risings and falls of the surface, covered for the most part with reddish alluvial soil, over the face of which are scattered numberless angular fragments of the surrounding rocks ; especially white and iron-stained quartz, and occasionally kunker. Some of these alluvia have not travelled far, since we often find the colour of the surface-soil a true index to the nature of the rock beneath ; viz., dark red or coffee-coloured soil over hornblende rock and trap ; light red to sandy soil over gneiss and granite ; light greenish-grey over talc schist ; and white, or what is nearly white, over felspar and quartz rocks. The quartz beds, being usually harder than their neighbours, are written in white bas-relief characters over the face of the country. They never weather—like the felspars, hornblendes and micaceous rocks—into clay, but usually break up into fragments by imperceptible fissures, into which water, impregnated with iron from the surrounding weathered rocks, soon insinuates itself and stains the rock. At length the particles composing the fragments themselves lose their cohesion and break up into an angular gritty sand.

At Periyapatna basaltic greenstone is seen in the bed of a nullah crossing the gneiss and hornblende rock, and veined with kunker. Large blocks of fine red granite are seen in the ruined fort walls, brought evidently from no great distance. The Ghat line west of Periyapatna presents a succession of round-backed hills and smooth knobs, which continue to Virarajendrapet in Coorg. Their surface is covered with dark vegetable mould, and shaded by a fine forest, the roots of which strike into the red loam or clay on which the vegetable mould rests. It produces excellent sandalwood.

At the Gersoppa Falls, by the same.

The precipice over which the water falls affords a fine section of gneiss and its associated hypogene schists, which dip easterly and northerly away from the Falls at an angle of about 35°. The gneiss is composed of quartz and felspar, with both mica and hornblende, and alternates with micaceous, talcose, actinolitic, chloritic and hornblende schists, imbedding (especially the latter) iron pyrites. These rocks are penetrated by veins of quartz and felspar, and also of a fine-grained granite, composed of small grains of white felspar, quartz and mica. The mass of hypogene rocks has evidently been worn back several hundred feet by the erosion and abrasion of the cataract ; the softer talcose and micaceous schists have suffered most. Rock basins are frequent in the bed of the river, which is worn in the rock and rugged with water-worn rocky masses.

From Jalarpet to Shikarpur (in 1881),[1] *by R. Bruce Foote, F.G.S.*

The results of combined traverses show that the Mysore table-land is traversed by great bands of granitoid and schistose gneiss, the southerly extensions of some of the great bands recognized in the South Mahratta country. When the whole of this region shall have been geologically examined it is more than probable that all the bands known to the north of the Tungabhadra will be traced far to the south. The traverse now to be described shows that three great bands of schistose rock occur on the Mysore plateau, and that two of these are actual continuations of two of the great schistose bands in Dharwar District. For convenience of description these bands will in the sequel be referred to as the "Dharwar-Shimoga" and "Dambal-Chiknayakanhalli" bands. Both these bands have been traced across the Tungabhadra, the latter in a chain of hills running down southward to Chitaldroog and Chiknayakanhalli, while the former forms another chain of hills passing Harihar and Shimoga and stretching further south towards Hassan. These bands are of considerable width, the Dambal-Chiknayakanhalli band, which is considerably the narrower of the two, measuring 18 miles across where crossed by the line of section. In addition to their geological interest, these two bands are of importance, as within their limits occur several of the auriferous tracts which have of late attracted so much attention. The Dharwar-Shimoga band is slightly auriferous at its northern extremity, and streams rising on it near Bail Hongal and Belavadi in the Sampgaon taluq of Belgaum District used formerly to be washed for gold. The auriferous tract of Honnali lies within the same schistose band a little to the north of Shimoga. The Dambal-Chiknayakanhalli band contains the auriferous tract of the Kapputgode hills near Dambal, to the north of the Tungabhadra; while south of that river, on the Mysore plateau, near the town of Chiknayakanhalli, are quartz reefs reported to be auriferous, and which have attracted the notice of several speculators, who have taken up land for mining purposes.

This schistose band is seen to stretch away far to the south-south-east in a line of low hills, and is said to extend to Seringapatam, passing that place and the town of Mysore to the eastward, and then trending round to the south-west and continuing into south-eastern Wynád, where it forms the gold-field around Devala. This tallies with Mr. King's observations in the Wynád, a strong band of schistose gneiss having been shown by him to occur at and around Devala, in which chloritic schists occupy an important position. My informant as to this extension of the Dambal-Chiknayakanhalli band was Mr. Lavelle, the pioneer gold-prospector of the present time, who has traced the band from the Wynád north to beyond Chitaldroog. I have no doubt but that Mr. Lavelle's observations will be fully confirmed when the whole of Mysore shall have been surveyed geologically. If the parallelism of strike continues between the southward extension of the Dharwar-Shimoga band and that of the Dambal-Chiknayakanhalli band,

[1] Records of the Geological Survey of India, Vol. XV., Part 4.

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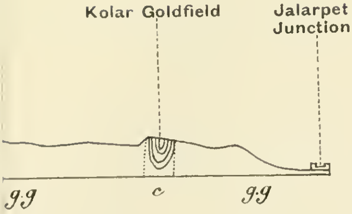

ranitoid gneiss.

SHIKARPUR

John Bartholomew & Co., Edinr

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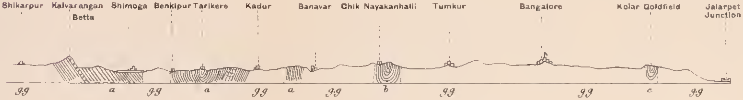


a Dharwar-Shimoga Schist band *b*. Dambal Chik Nayakanhalli schist band. *c* Kolar goldfield schist band *gg*. Granitoid gneiss.

SKETCH SECTION FROM JALARPET TO KALVARANGAN BETTA NEAR SHIKARPUR

After R. Bruce Foote, F.G.S.

it is highly probable that the former will be found to constitute the auriferous tract said to exist in the north Wynád. The stratigraphical relations of the several great bands, both granitoid and schistose, have yet to be worked out, for in the northern part of the great gneissic area they were found too obscure to be satisfactorily explained, and it remains to be seen whether they represent two or more great systems. Their position and relation are shown in the accompanying map and section.

If the line of section be followed from south-east to north-west it will be seen to traverse a region of very typical granite-gneiss, extending from Jalarpet Junction (Madras Railway), for a distance of some 30 miles. This granite-gneiss tract forms the eastern edge of the great Mysore plateau, which is here a wild, rugged, picturesque jungle region.

To the west the section crosses at its narrowest part the band of schistose rocks in which lies, a little to the north of the railway, the now well-known Kolar gold-field, at present a scene of energetic mining work on the lands taken up by a number of large Mining Companies. This schistose band, which will be most appropriately called the Kolar schistose band, forms an important synclinal trough resting on the adjacent granite-gneiss rocks. It is the only one of the great schistose bands whose relations to the associated bands of granitoid rocks have (as yet) been distinctly traced. A fuller account of this band with especial reference to its auriferous character will be given further on. (*See* p. 43.)

On crossing this Kolar gold-field band, the section trends northerly as far as the Bowringpet railway station, when it bends sharp round to the west and continues in that direction as far as Bangalore. The very broad band of granitoid gneiss, which extends between the Kolar gold-field schistose band to the second great schistose band (the Dambal-Chiknayakanhalli band), forms in its eastern part an open undulating plain from which rise a few important rocky hills, as the Tyakal, Balery and Vakkaleri hills north of the railway. A number of small low table-topped hills are also to be seen at small distances from the railway, as the Betarayan Betta, 3½ miles north-east of Bowringpet railway station, the Patandur hill, 2 miles south-west by south of the Whitefield railway station, and the low hillock crowned by a mantapam about a mile north of the Maharajah's new palace at Bangalore. These three hillocks are capped with beds of true sedimentary laterite underlaid by lithomargic clays. Of precisely the same aspect, both in form and colour, are the Sivasamudra, Jinnagra and Chikka Tagali hills, which lie a few miles north of the railway near the Whitefield and Malur stations. Identical in form and appearance also is a much more extensive development of table-topped plateaus, which are well seen from Betarayan hill, lying several miles to the north and covering a considerable area. The laterite at the north-eastern end of the Patandur hill is distinctly conglomeratic and contains a tolerable number of well-rolled quartz pebbles. The red colour of the sides of these hills and plateaus, added to their sharp-cut tabular shape, makes them conspicuous from considerable distances. No organic remains were found in connection with these laterite beds, and the number of sections examined was not sufficient to enable me to form any positive opinion as to

their origin, and still less so as to their geological age,—but there can be no doubt that they are the scattered outlying remains of a formerly far more extensive formation.

To the north-west of Bangalore the undulation of the country increases considerably, and the streams run in much deeper channels, affording more numerous sections both of the surface soil and sub-rock. The surface of the country is generally covered with a thick layer of red soil, which often contains a large percentage of pisolitic iron (hæmatite) in segregational form.

Thirty-two miles north-west of Bangalore the section cuts across the line of hills[1] running north and south from the Kávéri river, a little east of the great Falls, up to Nidugal on the frontier of the Anantapur District. This line of hills culminates close to the section in the fine peak of Sivaganga, which attains the height of 4,559 feet above sea-level. Like many other groups of granitoid-gneiss hills in the south, these hills are very rocky and bare, and look as if they had never been covered with a real forest growth.

The section maintains its north-westerly course up to Tumkur, beyond which town it turns suddenly westward and, after a course of 16 miles, in which remarkably few outcrops of rock are seen, meets the second great band of schistose rocks in the line of hills rising between Hagalvadi and Chiknayakanhalli. This second great band of schists is the southerly continuation of the Dambal-Chiknayakanhalli schist band as defined above. The width of this extremely well-marked schistose band, which the section crosses at right angles, is 18 miles. The character of the scenery is markedly different ; smooth, grass-grown hills, generally well rounded, with very few conspicuous exposures of rock, take the place of the bold rocky bare hill masses seen east of Tumkur. The rocks consist of hornblendic, chloritic and hæmatitic schists cropping out at very high angles or in vertical beds. Several large quartz reefs occur traversing these schists, and one large one crosses the road some distance west of Doddiganhalli. Time did not allow of my doing any prospecting here, but several prospectors have stated that their researches were rewarded by the discovery of gold in appreciable quantity both in the quartz and by washing the local soils. The extension southward of this schist band may be traced by the eye for many miles, owing to the very characteristic features of the low line of heights which extends south in the direction of Seringapatam. That they extend still further south and then trend south-westward into the south-eastern part of the Wynád may be assumed as a fact on the strength of the information kindly furnished by Mr. Lavelle. The contact of the schists and granitoid gneiss is unfortunately concealed by superficial deposits at the places where the section cuts across their respective boundaries ; but the impression left in my mind by the general appearance of the localities was that the schists were overlying the granitoid beds, and the same relation appeared to me to exist in the Dambal gold-field, as far as its western boundary is concerned.

[1] The expression line of hills is used in preference to the term chain, as there is little continuity of high ground, the hills being mostly quite detached and separated in some parts by considerable spaces.

The eastern boundary of the schist band was not traced near Dambal and Gadag, but further north it is completely hidden by the tremendous spread of cotton soil there prevailing. Passing on a little to the south of west from the schistose band the section runs across a granitoid-gneiss region, and after passing Tiptur crosses the watershed between the Kávéri and Krishna hydrological basins, the section trending more and more north-westerly along a rapid descent. It leaves the high, picturesque, granitoid hill masses of Hirekal Gudda and Gardangiri to the right, and beyond Banavar skirts the eastern boundary of the third or Dharwar-Shimoga schist band for several miles, but does not actually leave the granitoid rocks till it has passed Kadur by some six miles. The rocks of this granitoid band, which may for convenience be called the Mulgund-Kadur band, offer no speciality calling for remark. Like the hilly region running east of Tumkur, the hills may preferably be described as forming a line rather than a chain, for they occur in numerous detached masses.

As just mentioned, the section gets on to the third schistose band six miles to the north-west of Kadur, and here the schists are mostly chloritic of pale colour with intercalated more highly siliceous bands, ranging from chloritic gneiss to quartzite. To the south of the road the quartzites increase much in development and rise into a high ridge with a great cliffy scarp on the eastern face of Coancancul peak. Further west, to the south of the high road, rises a considerable hill of very rugged nature, which, when seen from a distance, presents great resemblance to a typical granitoid-gneiss hill. On closer approach the rock is seen to have a very coarsely mottled structure, which turns out to be due to the presence of enormous numbers of well-rounded pebbles of a granite or compact granite gneiss. The size of the included stones ranges in the part I examined from small pebbles to small boulders, all enclosed in a greenish-grey foliated chloritic matrix. The thickness of the conglomerate here exposed must be very great, as proved by the size of the hill which goes by the name of the Kal Droog. To the north, the beds are soon lost sight of under the local alluvium of the Kushi river, and they are not seen to reappear conspicuously in the hilly country on the north side of the valley. To the west of the great conglomerate beds follow more schistose beds, and, as seen on the hill slopes south of the road, a great series of quartzites. Near Tarikere, and to the north-west of it, very few exposures of rock are met with as far as Benkipur, but the few that do show through the thick woods which here cover everything, prove the country to be formed of schistose members of the Gneissic Series. About four miles north-west of Tarikere the road crosses a very small outcrop of typical hæmatite schist, striking in a northerly direction. A good deal of rock shows in the bed of the Bhadra river at and above Benkipur, but the forms seen are not very characteristic, and at the time of my passing everything was obscured by a thick layer of slimy mud left by a high fresh in the river. This part of the section would be very unsatisfactory were it not that the schistose character of the beds forming the line of hills extending northward parallel with the valley of the Bhadra shows quite clearly the extension of the rocks seen south-east and east of Tarikere. Between Ben-

kipur and Shimoga very little rock of any sort is seen, but about half-way across the Doab, between the Tunga and Bhadra rivers, a band of fine-grained grey granite gneiss is crossed, while to the east and south of Shimoga town are several conspicuous large masses of a chloritic variety of granite gneiss. The exact relation of these granitoid outcrops to the great schist series further east I had not the opportunity of determining, and am not quite certain whether they represent the eastern border of another great granitoid band, or whether they are part only of an unimportant local band of granitoid rock. I am inclined to think the latter will be found the real condition of things when the country comes to be fully surveyed. The short space of time at my command prevented my making a détour to settle this point. Here, too, the extent and thickness of the jungle growth greatly hide the general surface of the country along the road, while the rainy or misty character of the weather tended much to obscure the appearance of hills at but very moderate distances. Though the exigencies of dâk travelling compelled me to make the détour to Shimoga instead of following the line of schistose beds northward from Benkipur, I am perfectly satisfied as to the fact of these schists continuing northward, and joining those which cross the united rivers forming the Tungabhadra, a few miles below the junction of the Tunga and Bhadra. The country here is much freer from jungle, and many ridges of rock, consisting of quartzites and chlorite schists with rocks of intermediate character, can be traced for miles. This part of the section extends from the bank of the river for rather more than 20 miles,—from the travellers' bungalow at Holalur north-westward to the Tavankal-betta Trigonometrical Station, six miles east-by-south of Shikarpur. Along the 12 miles of road between Shimoga and Holalur but little is seen of the older rocks, the road lying close to the left bank of the Tunga and Tungabhadra, and passing almost entirely over the river alluvium which at and to the north-east of the Holalur bungalow forms a coarse bed of rounded shingles, rising a considerable height above the present high flood level of the united rivers.

The most striking features, both orographically and geologically, of this part of the Mysore country are the quartzite outcrops, which are numerous, but of which only the principal ones require notice. Of these the best marked, longest and highest culminates in the Kalva-Ranganbetta, a fine hill rising some 1,200 feet above the plain, and 3,388 feet above sea-level, 16 miles to the north of Shimoga. The out-crop of the great quartzite beds forming this ridge has a distinct dip of some 60°–65° (on the average) to the north-east. The quartzites are underlaid by a schistose (chloritic) series, the south-western extension of which was not ascertained. Overlying the quartzites, which are generally flaggy in character (but which here and there become so highly charged with scales of pale green chlorite as almost to lose their quartzitic character, and pass into chloritic gneiss), are local beds of true conglomerate,—the first I have met with or heard of in the gneissic rock of the peninsula. The conglomerate has evidently undergone considerable metamorphosis, but its real character and truly clastic origin cannot be doubted when carefully examined. Many of the included pebbles appear to

have been fractured by the great pressure undergone, but their truly rounded character is quite distinct and unmistakable. The beds seen by me and traced for several hundred yards, are exposed a little way up the slope of Kalva-Ranganbetta peak, and a little to the north-west of a small, but rather conspicuous, pagoda, which stands in a little recess. The included pebbles in the conglomerate consist chiefly of quartz, a few of gneiss, and some of what appeared an older quartzite. A second intended visit and closer examination of this very interesting bed was prevented, much to my sorrow, by bad weather. The second in importance of the quartzite ridges has its eastern extremity in the bed and left bank of the first west-to-east reach of the Tungabhadra below the Kudali Sangam, or junction. West of the new high road from Shimoga to Honnali the quartzite beds rise into the Phillur Gudda (hill), and beyond that rise again into a considerable hill some 400 to 500 feet high, and may be followed easily for several miles to the north-west. The quartzitic character is then in great measure or entirely lost by the rock becoming highly chloritic, and the beds can no longer be safely distinguished from the surrounding mass of chloritic schist. In the north-westerly part of this Phillur Gudda ridge several pebbly beds were observed intercalated between the more or less chloritic quartzite. They differed from the Kalva-Ranganbetta beds in being less coarse and having a more chloritic matrix, but had undergone about an equal amount of metamorphosis. A considerable number of quartzite ridges are intercalated between Phillur Gudda ridge, and the southern end of the Kalva-Ranganbetta ridge, which terminates in the Nelli Gudda Trigonometrical Station hill, seven miles west-north-west of the Kudali Sangam. To these ridges may be ascribed the existence of the group of hills they occur in, as but for their greater durability and resisting power to weather action, they would certainly have been worn down to the low level of the purely chloritic part of the schistose band, both to the north-west and south-east. Unless there has been an inversion of the strata on a rather large scale, or faults exist which were not obvious during the rapid survey, the Kalva-Ranganbetta quartzites underlie all the beds to the northward of it. Another series of overlying quartzites is shown to the north-north-west of Kalva-Ranganbetta ; but the relation between it and the upper beds just described could not be determined without a much more close examination of the district, more especially as the space between the two sets of outcrops is very largely and closely covered by spreads of regur. The chloritic schists offer no specially interesting features, and they are not, as a rule, well seen, except on the slopes of the hills, the general face of the country being much obscured by red or black soil, which, both of them, occur in great thickness.

Honnali Gold-field.—One remaining point of great interest is the large number of important quartz veins, or reefs, which traverse the belt of chloritic rocks overlying the Kalva-Ranganbetta quartzites. They are the source of the gold occurring in the thick red soil which covers the whole face of the low-lying country, and which has been washed for gold, certainly for several generations past, by several families of Jalgars residing at Palavanhalli. The gold is so generally distributed through the red soil that

it is clear that many of the reefs must be auriferous, and the quantity found is sufficient to justify strong hopes that a profitable mining industry may be developed by working the richer reefs. Several of the series of reefs close to Devi Kop, a little village 3½ miles east-south-east of the Kalva-Ranganbetta, had been carefully and deeply prospected at the time of my visit by Mr. Henry Prideaux, M.E., and in one case certainly with very marked success. The quartz in this case was found very rich in gold, which was visible in grains and scales scattered pretty freely through the mass. The quartz in many parts had a quasi-brecciated structure with films and plates of blue-green chlorite occurring along cracks in the mass. Near the surface the chlorite, with which were associated small inclusions of pyrites, had often weathered into a rusty-brown mass. The reef which at the time of my visit was regarded as the most promising, and to which the name of Turnbull's reef had been given, is one of a series of three that can be traced with some breaks for a distance of six miles nearly parallel with the great quartzite ridge of the Kalva-Ranganbetta, the true strike of the reef being from N. 40° W. to S. 40° E. Another important set of three reefs having the same strike occurs about half a mile north of the first series, but they are not visible for such a long distance, their north-western course being covered by the thick spread of cotton soil. To the south-east they, or at least one of them, can be traced across the Nyamti nullah, which divides the gold-field in two. Out-crops of vein-quartz in a line with a south-easterly extension of this set of reefs are to be seen north and east of Palavanhalli. Numerous other quartz reefs having the same strike occur in the south-eastern half of the gold-field, *e.g.*, a set of four, rather more than a mile north-east of Palavanhalli, and several others to the north of Dasarhalli and south of Kuntra. A few reefs were also noticed whose strike was different from those above referred to. They represent two other systems of fissures, the one running N. 5° E. to S. 5° W.; the other, W. 5° N. to E. 5° S. Several of both these series are of very promising appearance, the "back of the lode" bearing considerable resemblance to that of Turnbull's reef. The greater number of the reefs in the Honnali gold-field are well-marked examples of these fissure veins.

During my stay at Devi Kop, I watched the results of many washings both of crushed quartz and of the red soil taken from many localities and various levels. The great majority were highly satisfactory. The Jalgars, or local gold-washers, seem to be a fairly prosperous set of men, so their earnings must be fairly remunerative. They confine their attention, as far as I could ascertain, pretty generally to the high-lying red soil banks, between Devi Kop and the Nyamti nullah. The head Jalgar, a very intelligent old man and dexterous gold-washer, informed me that the best day's work he had ever done was the finding of a small pocket in the gneiss which contained about Rs. 80 of gold in small grains and scales. I gathered from him that he had not found anything beyond the size of a "pepite." The position of these auriferous banks near Devi Kop would admit of hydraulic mining over a considerable area by a system of dams and channels to bring water from the Nyamti nullah, but the question of the

profitableness of such an undertaking could only be decided by an expert after careful examination and more numerous trials by washing.

Kolar Gold-field.—The schistose band, which bears within its limits the Kolar gold-field, forms an elongated synclinal fold which in parts rises somewhat over the general level of the surrounding granitoid country. The dip of the rocks forming the basement of the schistose band, and therefore the boundaries of the synclinal fold, is easily traced on both sides; not so, however, is the dip of the uppermost members of the group, for all the beds exposed in the centre of the band have been much altered by great pressure, which has superinduced an irregular slaty cleavage to a great extent. This, combined with extensive minute jointing, has so greatly altered the original texture of the rocks that they have assumed to a very great extent a highly trappoid appearance. The lines of bedding are completely obliterated, and it was impossible to decide from the sections I saw whether the central axis of the synclinal represents one great acute fold, or a series of minor ones in small vandykes. The great petrological similarity of the strata forming the upper (central) part of the synclinal makes the decipherment of this difficulty all the greater. The sections I saw in the several shafts being sunk at the time of my visit threw no light on the subject; it is possible, however, that a closer study of these sections would go far to enable this point to be decided.

The succession of formations seen from west to east, after leaving General Beresford's bungalow at Ajipalli on the road from Bowringpet railway station to the gold-field, is micaceous gneiss (resting on the granitoid gneiss), chloritic gneiss, micaceous schist, hæmatitic quartzite, and chloritic schist, on which rests a great thickness of hornblendic schists, which, as just mentioned, are highly altered, and have their planes of bedding almost entirely effaced by the pressure and crumpling they have undergone. The eastern side of the fold shows near the village of Urigam well-bedded schists—dipping west from 50° to 60° and resting finally on the granitoid rocks. The western side of the gold-field is very clearly demarcated by a well-marked ridge of hæmatitic quartzite which culminates in the Walagamada Trigonometrical Station hill, from the top of which the majority of the mines can be seen. The bedding is often vertical and highly contorted in places. The texture varies from highly jaspideous quartzite to a schisty sandstone. The hard jaspideous variety generally shows distinct laminæ of brown hæmatite, alternating with purely siliceous laminæ, generally of white or whitish-drab colour. It is only here and there, and over very trifling areas, that the ferruginous element ever assumes the character of red hæmatite. The beauty of the "vandykes" and complicated crumpling and brecciations of this rock in the Walagamada Konda is very remarkable. The thickness of the hæmatitic band is very considerable, and it forms the most striking feature of the western side of the gold-field. On the eastern side of the gold-field the hæmatite quartzite is much less well developed and exposed, excepting in the south-eastern part of the gold-field where it occurs in thick beds forming the main mass of the Yerra Konda Trignometrical Station hill. Here the dip is about 60°

westerly, and affords one of the clearest proofs of the synclinal character of the schist band. To the southward the hæmatitic beds appear to coalesce, the synclinal being pinched together, but I had no opportunity of following up the eastern boundary of the schistose band. The western boundary is a very conspicuous feature, a bold rocky ridge running up into the lofty Malapan Betta peak, the highest summit in this part of the country. South of Malapan Betta the hæmatitic beds appear to lose their importance and no longer form the most striking feature of the schistose band, and micaceous and chloritic beds abound. Owing to the great extent of jungle and the rugged character of the country, their general relations were not to be made out completely in the short time at my disposal. The beds run south into the Salem District, and probably occupy the valley lying east and north-east of Krishnagiri and, not improbably, extend on towards and past Darampuri. A subsidiary ridge of lower elevation, which branches off from the western side of Malapan Betta westward and then trends south-west and finally south-south-west, also consists of schistose beds of similar character, amongst which a hæmatitic quartzite is the most conspicuous. The relation of these latter beds to the Kolar gold-field synclinal fold is quite problematical, but it is very probable that several important faults have caused great dislocation of the strata first along the boundaries of the main synclinal fold. The stratigraphy of the several spurs radiating from Malapan Konda is very complicated and interesting and well worthy of careful consideration.

The auriferous quartz reefs which have attracted so much attention lie in the broader part of the synclinal fold north of the railway. None of any importance were seen by me in the tract south of Malapan Betta. The intermediate tract I had no opportunity of examining closely, but I did not hear of the existence there of any of interest or importance. The reefs make very little show on the surface as a rule ; in many cases, indeed, the whole back of the reef, or lodes, has been removed during the mining operations of the old native miners, whose workings were on a rather large scale considering the means they had at command. Much also of the surface is masked by scrub jungle, or by a thick coating of soil, often a local black humus. The reefs are so very inconspicuous that I have not attempted to show them on the map. Their run is north and south with a few degrees variation either east or west. The hade of the reefs is westerly in most cases, as far as they have been tested by the shafts sunk. The angle they make with the horizon is a very high one, on the average not less than from 85° to 87°. Much has been said about the reefs in the Kolar not being true fissure veins, but I was unable to find any good reason for promulgating this view, and several mining engineers of high standing and great experience, as Messrs. Bell Davies, Raynor St. Stephen, and other practical miners well acquainted with the locality, have no hesitation about calling them "fissure veins" or "lodes." The quartz composing the reefs is a bluish or greyish-black diaphanous or semi-diaphanous rock, and remarkably free from sulphides (pyrites, galena, &c.) of any kind. The gold found is very pure and of good colour. Several washings of crushed vein stuff were made in

my presence at the Urigam and Kolar mines with really satisfactory results, the quantity of gold obtained being very appreciable. The samples operated on were not picked ones.

The principal new mines now in progress form a line stretching from south to north on the eastern side of an imaginary axis drawn along the centre of the synclinal fold, and this line coincides with that followed by the "old men," many of whose abandoned workings are being extended to greater depth than they had the power of attaining to without steam-pumping machinery.

Numerous large dykes of dioritic trap are met with traversing the gneissic rocks of this region. One set of them runs north and south with a variation of about 5° east or west. The other runs nearly east and west. The presence of these dykes will offer formidable obstacles to the mining works in some places, and it will probably be found that the intrusion of these great igneous masses has added considerably to the metamorphism of the schistose beds along the lines they traverse. As already mentioned, the schists are most highly altered along the central axis of the synclinal fold, and the largest of the north and south dykes shows a very little to the east of the synclinal axis.

The Kolar schistose band is the only one as to the exact stratigraphical relation of which to the granitoid gneiss any positively conclusive evidence had been obtained; but there is reason to believe that at least three of the schistose bands to the westward of it, *viz.*, those of Sundur, near Bellary, of Dambal-Chiknayakanhalli, and of Dharwar-Shimoga, are similarly superimposed on the granitoid rocks. Whether the superposition is a conformable or an unconformable one, is a point that has yet to be determined by further investigation; at the Kolar gold-field, however, the relation between the schistose synclinal and the underlying granite gneiss appears to be one of distinct conformity. The Hospet end of the Sundur schist band certainly presents every appearance of being the acute extremity of a synclinal basin. The south-eastern extension of this band is as yet unknown, but there is good reason to expect a considerable extension of it to the south-eastward of Bellary.

The remarkable length of the Dambal-Chiknayakanhalli and Dharwar-Shimoga bands precludes the idea that they can be each a simple synclinal fold, rather may they be expected to prove a succession of synclinal and anticlinal in échelon, with their contact boundaries not unfrequently coinciding with faults. The geographical position of these great bands confirms and amplifies the evidences to the fact which I specially pointed out in my Memoir[1] on the East Coast from latitude 15° N. northward to Masulipatam, that the Peninsula of India had been greatly affected by tremendous lateral forces acting mainly from east to west and thrusting up the gneissic rocks into huge folds. These great foldings have undergone extensive denudation, and the softer schistose beds especially have been entirely removed from large tracts of country which they must have formerly covered, if any of the bands now remaining really represent (as they in all probability do) portions of once continuous formations.

[1] Memoirs, "Geological Survey of India," Vol. XVI.

The schistose bands having only been mapped at different points, their general width, as shown on the annexed sketch map, is only hypothetical, and it is very possible that at intermediate points they may either spread out or narrow considerably. Their relation to the schistose gneissics of the Carnatic Proper has yet to be made clear, and it is not at all unlikely that a third subdivision will have to be recognized in the crystalline rocks of South India—a subdivision which will include the rocks of a character intermediate between the typically schistose rocks and the typically granitoid rocks of Mysore and the South Mahratta country, namely, the massive gneissics of the Carnatic, in which the ferruginous beds are magnetic, not hæmatitic.

From Report on Auriferous Tracts in Mysore (*in* 1887), *by the same.*

These tracts lie widely scattered, but may be conveniently grouped (for the purpose of description) in three groups corresponding to the three principal divisions of the great Auriferous rock series[1] which traverses Mysore in great bands in a generally north-north-westerly direction, and forms such important features in the geological structure of the table-land. These three groups may be appropriately termed the *Central*, the *West-Central*, and the *Western* groups ; the *Eastern* group being formed by the Kolar gold-field (*see* above, p. 43). The central group belongs to the Dambal-Chiknayakanhalli band of my former paper : and the western group to the Dharwar-Shimoga band of the same. The west-central group includes a number of small outlying strips of schistose rocks, some, if not all, of which are of the same geological age as the great schist bands lying to the east and west.

(*Nanjangúd to Jagalúr.*)

Central Group.—The rocks seen at *Holgere*, 7 miles south-west of Nanjangúd, are very gneissic in their general aspect, but they are very badly seen on the top of the ridge where the old workings are situated, and it is possible the hornblendic beds there occurring may belong to a very narrow strip of the auriferous schists (Dharwars), an outlier of them in fact, and probably faulted in along the strike of the underlying gneissic rocks. The

[1] Rocks of the same geological age as the auriferous rocks of Mysore occur largely in other parts of South India, both north, east, and south-west of Mysore, and to classify such a widely-developed system, it was necessary to have a collective name for them. The name of *Dharwar* rocks was therefore given by me to these rocks, on the usual principles of geological nomenclature, namely, for their having been first recognized as a separate system after the study of their representatives in the Collectorate of Dharwar (Bombay Presidency), where they occur very largely and typically, and underlie the important town of Dharwar. The use of this name in this report has, however, been deprecated on the plea that it might lead to confusion in the minds of readers unfamiliar with South Indian geography. I have therefore avoided using it wherever this was possible, but geologists who may peruse my report will understand that the alternative terms which I have used, "Auriferous" or "Schistose rock series," really mean formations of the Dharwar age.

quartz reefs here seen are small and coincide in direction with the north-to-south strike of the country rock, or deviate a little (3°–5°) to the east-of-north. The quartz exposed in the principal old working is highly ferruginous, being full of scales and films of impure hæmatite (specular iron), but contains no pyrites or other sulphides. North of the old working the reef is cut off by a broad band of a highly decomposed granite rock containing much pink felspar. The country between Holgere and Mysore is composed of micaceous gneiss with a few bands of hornblendic schist and potstone, with no quartz reefs of any importance, and the small show of gold obtained by Mr. Lavelle from washings in the Kadkole nullahs must have come from veins too small in size to be worth mining. I could not trace any connection between the Holgere auriferous rocks and the great Chiknayakanhalli band, the former must therefore be considered as a mere small outlier, if they are really of Dharwar age. The line of high ground commencing on the north bank of the Kávéri river near *Shettihalli* consists mainly of quartzites and hornblendic schists belonging to the Dharwar series and forming a narrow band (from 2 to 3 miles in width), which extends northward, widening very gradually as it is followed up. A number of small quartz veins occurs running in the direction of the strike of the beds, here nearly due north and south. The quartz is very white and "hungry-looking," and very few minerals are to be found in it. Those noted were blackish-greenish mica and a white decomposing felspar, the former not infrequently in distinct six-sided prisms. These included minerals show but very rarely and at wide intervals, but here and there become numerous and convert the vein into a true granite, a rock in which gold very rarely occurs in any quantity. Fragments of good-looking blue quartz were noticed scattered about the surface to the south-west of Siddapur village, but on tracing them up to their true source they were found to be derived from typical granite veins. As far as surface indications go, this tract appears a very unpromising one, and quite undeserving of consideration when so many really promising tracts remain as yet unprospected. The course of the extension of the Chiknayakanhalli schist band south of the Kávéri is yet undetermined, but as seen from the top of the Karigatta Trigonometrical Station, it appears to go southward, passing east of the granitoid mass of Chámundi hill; unfortunately want of time prevented my determining this point, which is one of considerable interest geologically. *Honnabetta* is a hill lying a mile and a half south by west of Nágamangala, and forming the central part of an outlier of the auriferous series on the western side of the Chiknayakanhalli band. The mass of the hill consists of hornblendic schist overlaid by chloritic schists. A washing made in the small nullah draining the north-east face of the hill just within the eastern boundary of the auriferous rocks gave a good show of gold of medium size and excellent colour. I noted one large bluish quartz reef on the high north spur of the hill which struck me as worthy of being tested in depth. At present merely the back of the lode is exposed, and but to a very small depth, so it is impossible to test the real quality of the stone. This reef runs through the chloritic schists. *Girigudda* forms the northern extremity of the outlier, and shows chloritic

and hornblendic schists, extensions of the Honnabeṭṭa beds. The ridge of the Girigudda is traversed by a pale green dioritic (?) trap. The north end of the outlier dies away rapidly northward of Girigudda, and disappears northward of the nullah. A careful washing in the small stream draining the east side of Girigudda, at a spot about a quarter of a mile eastward of the hill, gave a fair show of medium fine gold. The presence of trap rock among the schists is a favourable indication for the presence of gold. The whole outlier, which extends 7 miles from Girigudda southward to Maradipur, with a width of a little more than a mile across Honnabeṭṭa hill, is deserving of very close examination, and the reefs of being prospected to some depth. About 2 miles north of Girigudda and within the gneissic area lies *Hulmandibeṭṭa*, a low hill on the ridge of which occur several fine reefs which are being tested in depth by the Mysore Concessions Gold Company. The question—Are the quartz reefs occurring in the gneissic rock profitably auriferous as well as those occurring in the Dharwar series? (to which all the important gold-yielding reefs at present known unquestionably belong)—will doubtless ere long receive a definite answer from the results of these deep prospectings, and I sincerely trust it will be a very favourable one, as, if so, many other reefs of great size and beauty running through the gneissic series may probably also prove to be gold-yielding. Much of the quartz turned out at Hulmandibeṭṭa is good-looking, bluish in colour, contains some pyrites, and encourages the hope that it will prove auriferous at depths not reached by superficial weather action. *Haltibeṭṭa*, a large hill some three miles north of Nágamangala, has been reported auriferous, but the statement is highly improbable, the whole mass of the hill except the southernmost extremity consisting of granitic gneiss. A band of schistose rock extends from the southern spurs southward for a couple of miles till hidden by the alluvium of the Nágamangala stream. Large reefs of quartz were noted on either side of Haltibeṭṭa; they are very unpromising, the quartz being very white and free from included minerals. In miners' parlance, they are very hungry-looking. At *Kalinganhalli* the old native workings occupy a considerable area on which old dumps stood thickly, showing that a large amount of washing had been done. A very good show of gold was obtained by washing the dumps, but no reefs, large enough to be worth mining, could be found. Further south, however, fine reefs are to be seen pretty numerously, running north and south in the strike of the chloritic schists.[1] A narrow strip of very typical auriferous schists crosses the road a mile and a half west of the bridge over the Shimsha on the Hassan-Bangalore road, and may be seen stretching away north and south to a considerable distance, a strongly-marked bed of jaspery hæmatite quartzite forming a distinct ridge. This strip of schists is faulted against the gneiss along its eastern boundary about half a mile to the east. The northern extension of the schists crosses the Shimsha and is lost sight of in the broken ground east of the river, but the southern extension can be traced to the high ground north of Ankanhalli.

[1] The strike of the schistose beds here tends considerably eastward, and they appear to extend towards Kunigal, instead of running nearly due south down to Nágamangala, as I had formerly assumed on imperfect information.

South of Ankanhalli the highly characteristic hæmatite band reappears and forms a marked feature, continuing for several miles till almost abreast of the Narasimhaswami pagoda hill. The western boundary of this band of Dharwars is in all probability also a faulted one, several hundred feet in thickness of chloritic and hornblendic schists lying between the hæmatite bed and the gneiss near Nalkundi, while to the north, where the hæmatite bed crosses the Bangalore road (1½ miles west of the Yediyur bridge), it shows close up to the gneiss. The schistose rocks appear to spread out over a considerable area eastward of the Narasimhaswami hills, and may very likely reach as far as the line of granite-gneiss hills east of the Shimsha. A line of considerable hills, showing all the characteristics of the auriferous series, is seen to stretch southward for many miles some little distance west of Kunigal. These rocks, if really belonging to the auriferous series, represent the beds deflected eastward or south-eastward near Kadaba, and as such are worth examination. The old workings on *Honnebâgi* hill, near Chiknayakanhalli, lie a few yards down the eastern slope and just within the boundary of the auriferous schist area, the crest of the ridge being formed by gneiss on which rests the basement bed of the schist series, which is here a quartzite. The old workings, which consist only of small shallow pits surrounded by dumps, extend southward for nearly a mile along the watershed, and at the south end of the area they occupy have followed some east and west reefs across the boundary into the gneissic area. The reefs are white and "hungry-looking," and the old miners seem to have found no great encouragement, for they have made no extensive excavations. The principal reef on Honnebagi hill runs N. 15°–20° W., but trends southward; at the south end of the ridge it is about 5 feet thick. Overlying the basement quartzite on Honnebagi hill comes a series of schists, horneblendic, chloritic and micaceous, which occupy the space up to the foot of the hills, where they are overlaid by argillites and a great thickness of hæmatitic schists, locally very rich in iron, and giving rise to the formation of sub-aerial breccias which assume a lateritic appearance from the action of percolating rain-water. Quartz reefs of rather more promising appearance than those on Honnebagi hill occur here and there in the schists, and are probably the source of the gold obtained from the streams draining this tract. A set of washings made by me near the north-east end of Honnebagi hill in the main nullah and its branches gave very fair shows of medium fine gold of excellent colour. Tests by crushing and washing quartz from two of the trial pits recently sunk on Honnebagi hill gave no show, but this is not conclusive, the quartz being from too small a depth and the quantity of quartz to be treated by hand-crushing being necessarily insufficient for a reliable test. The reefs at *Kadekalgudda*, 2½ miles N.N.E. of Chiknayakanhalli, like those at Honnebagi, all lie within the schistose area though very near the boundary, and like them run in the strike of the country rock, which is here very nearly north-west-by-north. The quartz is white in colour, but a good deal iron-shot along the lines of fracture. I could find no enclosed minerals except a little chlorite and obtained no show from crushings, but a careful washing made in the stream draining the north-west end of Kade-

kalgudda gave a fair show of rather fine gold. On the slope of the hill above the great reef just mentioned are chlorite schists and an associated flow of dioritic trap, both favourable to the presence of gold, and other reefs of better quality may very likely be hidden under the talus which covers the slope very generally. A washing of material collected in the nullah draining the north-east side of Kadekalgudda gave no results. A washing of the alluvial deposit on the banks of the nullah draining the eastern side of the main ridge east of Chiknayakanhalli, close to the Dodrampur temple, gave but a poor show of gold ; this, however, is not surprising, as the east flank of the range shows but very few quartz reefs of any size ; the country is almost entirely formed of grey crystalline limestones with very numerous siliceous partings in the form of quartzite, which here and there attain to the magnitude of distinct beds. The limestones are much contorted, so their true thickness will be hard to ascertain by measurement, but they are certainly several hundred feet in thickness, and cover a large area stretching away to the south-east. A small show of similar limestones shows on the western side of the range just opposite the mouth of the gorge east of Ballenhalli which cuts so deeply into the hills. The range here unquestionably forms a synclinal fold, the axis of which corresponds with the crest of the range. To the north the limestones are replaced by schists and argillites as above mentioned, while to the south the tract at foot of the range is so thickly covered with deep red soil derived from decomposition of the hæmatitic schists on the summit of the ridge that the low-lying schists are completely obscured, for the red soil, which contains local conglomerate and breccia beds, is not cut through by the streams now flowing westward from the hills. A washing which I had made in the nullah south of Sondenhalli gave a small show of gold.

A great gap intervenes between the Chiknayakanhalli gold-field and the next metalliferous locality in the central group—Belligudda copper mine, close to Chitaldroog. The intervening area is geologically a *terra incognita*, in which a geological survey would assuredly find mineral tracts of importance. *Belligudda* is a fine hill lying some 5 miles south-east of Chitaldroog, on the western flank of which are four large open pits and several small shafts and short galleries sunk in clay schist in order to extract copper ore, which occurred there in the form of malachite or green carbonate. From the nature of the workings the ore appears to have occurred in pockets, not in a regular lode, and the pockets to have been worked out bodily, nothing remaining but thin films of a very poor earthy form of the carbonate deposited in the joints and cracks of the schists. A few fragments of quartz with small particles of rich malachite were picked out of the attle tipped down the very steep side of the hill, but no trace of any other ore or metal could be discovered after very careful search. *Kotemaradi* and *Gudda Rangavvanhalli* are two auriferous localities at the south-east and north-east extremities, respectively, of a tract of schistose rocks lying between 3 and 4 miles north of Chitaldroog. The country rock is varied, consisting of dark chloritic schists overlaid by beds of quartzite, and these again by various schists. Quartz reefs are rare, or else covered up by the extensive

talus, but the washings made were very successful and yielded gold in relatively large quantity and excellent quality. Taking all things into consideration, this tract is one of the most promising I have seen. The quantity of gold obtained was so good that the country north-west and north of the little Kotemaradi, and again to the north-east of Guddarangavvanhalli deserves to be most closely tested by costeaning and deep prospecting. The nature of the country rock, chlorite-schist with associated diorites, is all that can be desired, and there are no ostensible difficulties of a nature likely to hinder the opening up of mines, should rich reefs be discovered on further prospecting. About 14 miles north of Guddarangavvanhalli lies the small hill known as *Honnamaradi*, to the west and south-west of which are several fine reefs and numerous small veins of quartz cropping up through the soil which hides the country rock. The hill consists of a drab or yellowish gritty schist, passing into argillite in parts. Immediately east of the hill is an outcrop of gneiss, the eastern extension of which is masked by a great spread of cotton soil. The dip of the schists is easterly, but at a very high angle, and the two rock series are separated by a fault boundary. A careful washing in the little gully which drains the south and west sides of the hill gave a very fine show of coarse gold, which can only have come from a very little distance and is doubtless derived from one or more of the reefs above referred to. The gully which flows round the eastern side of the hill cuts some 12 to 15 feet into the decomposing gneiss, and has exposed several small reefs of very blue quartz. This spot had evidently been a favourite place of resort of the Jalagars in olden times, for two very large dumps are to be seen on the western bank of the gully. A washing of material collected in the bottom and banks of the gully gave a very fair show of fine gold ; this may, however, have come from reefs lying within the schist area, as the gully rises within it on the north side of the hill. With regard to this gold-yielding locality, I quite agree with Mr. Lavelle that it is one of very great promise. Honnamaradi is the most northerly auriferous locality at present known in the Chiknayakanhalli band, which continues its north-north-westerly course for a few miles beyond Jagalur, and then crosses the frontier into the Bellary District. The Chiknayakanhalli schist band sends off a north-westerly branch some 6 or 7 miles south-west of Chitaldroog. This branch also continues its course into the Bellary country, and passes close east of the well-known Uchchangi-droog, a very conspicuous granite-gneiss hill crowned by a large fort. Several groups of hills rise out of this band, one of them occurring to the north of the high road leading from Chitaldroog to Davangere. At the north end of this latter group lies the village of Halekal, after which this end of the hills is called the Halekalgudda, and between it and the village lies the auriferous locality known by the same name. The *Halekalgudda* hills consist of thick and gritty, locally conglomeratic quartzites, with siliceous, micaceous and chloritic schists. No reef or veins show on the northern slope above the gold-washing place, but an area of several acres shows very numerous old dumps, showing that the surface soil had been largely turned over. The washing made here gave a good show of

moderately coarse gold. Some fine large good-looking reefs, running in the strike of the rock, occur, crossing the footpath which leads from Halekal to Gummanur, 3 miles south-west-by-south. West of these is a great flow of dioritic trap intercalated between the upper and lower schists. Though not so promising as Kotemaradi and Honnamaradi, Halekalgudda is yet deserving of the closest investigation.

(*Mysore to Banavar.*)

West-Central Group. — As already stated, the auriferous localities included in this group occur all in small detached strips or patches of schistose rock scattered over the older gneissic series. They are really remnants of the once apparently continuous spread of schistose (Dharwar) rocks which covered great part of the southern half of the Peninsula. After this great series of rocks had been deposited, the crust of the earth on which they rested underwent tremendous lateral pressure, and they were crumpled into a series of great foldings running up and down the Peninsula in parallel directions. After this they were exposed to tremendous erosive forces and in parts entirely worn away, and the underlying old gneissic rocks again laid bare. The small outliers are then nothing more than little patches and strips of the younger schists which have escaped erosion either from the superior durability of the rocks composing them, or from their having been let down by fractures of the earth's crust, technically known as faults, to a lower level than surrounding parts of the gneiss, and thus escaped in some measure the full action of the eroding agencies, whatever they may have been. The most southerly of these outliers in this group is the little gold-field of *Sonnahalli*, 18 miles south-west of Mysore. The shape of this auriferous tract is roughly a narrow oval, forming the flattish top of a low rise running north and south. The workings extend for about 2½ miles north and south. I estimated the length of the oval at 3 miles, but this may possibly be an under-estimate, as the country is much obscured by low jungle, especially to the south and east. The country rock consists of chloritic and other schists overlying very trappoid hornblendic rock. The old workings are numerous but none of very great size, and all seem of great age, judging by the highly-weathered condition of the rocks exposed in their sides. All of them are much overgrown by jungle, and one has to cut one's way through a dense tangle to get right into them. The shape of the working appears in every case to have been due to the run of the reefs worked upon. These reefs very probably contained visible gold, which induced the old miners to take out all the quartz they could raise, leaving only here and there masses which they considered unproductive or, in a few cases, too large and massive to be dealt with conveniently. In many cases, both here and elsewhere, the whole lode has been removed as far as can be seen, and the nature of the lode can only be guessed at from fragments of quartz left behind, and it is at present impossible to form any opinion about the value of the property. If the old pits were completely cleared out, the lode would in most cases be rediscovered and could then be properly tested in depth.

Scrapings of the sides of all the principal workings south of Sonnahalli were washed and gave at best but very small shows of gold. Half a mile east of Sonnahalli village, a very large reef is exposed on the top of the ridge ; it does not look very promising, but seems worth deeper prospecting than it has yet undergone. I did not attempt a crushing, as I could not find any good-looking stone from a sufficient depth. This reef has a run of N. 5° W. At the foot of the north-eastern slope of the Sonnahalli betta or hill, a large reef has been exposed and to some extent worked out by a series of pits of moderate size. The quartz is white and barren-looking. The line of old workings at *Karimaddanhalli* commences about 1½ miles east of Sonnahalli betta, and extends northward for about a mile. They have been sunk in pale pink gneissic-looking felspathic schists, but associated with them are some hornblendic and ferruginous strata which bear a fair resemblance to characteristic members of the auriferous schist series, and they may, provisionally at least, be regarded as belonging to it. They form a narrow strip about 2 miles in length on the flat top of a ridge east of Karimaddanhalli village. The rock forming the casing of the reefs is generally chloritic near the contact, but not so at the distance of a yard or two. In the most southerly working the reef is not seen in the pit at present and seems to have been entirely removed, but this cannot be decided unless the pit were entirely cleared of jungle and débris. Fragments of quartz remaining are white but much iron-stained, and contain a few scattered small cubes of pyrites. The great working east of Karimaddanhalli village has been excavated along the course of a large reef running very nearly due east and west. In colour this reef is very white, but parts are much iron-stained, and it contains many cavities both cubical and irregular in shape, the latter containing a decomposed chloritic mineral and limonite. A few cubes of pyrites were noticed and some specks of arsenical pyrites. About ⅓ mile to the northward of the great working commences a line of smaller old works which extend right down to the south end of the Gijayanvaddargudi tank, a good mile to the north. Many reefs are exposed running in various directions north, south, east, west, north-east, south-west, &c. &c., and all are white and hungry-looking, and include hardly any accessory minerals, small chloritic and hæmatitic inclusions excepted. Some of the reefs are large, from 6′ to 8′ or 10′ thick. The country rock here consists of hornblendic and chloritic schists, the latter in very small quantity. Many washings were made and gold obtained in nearly every case, but only in small quantity. Not a vestige of free gold was seen in any of the reefs, either here or anywhere else. If it existed, the old miners were very careful to remove every atom of the gold-bearing quartz. About ¾ of a mile north-east-by-east of *Nadapanhalli* is a line of old workings of limited extent, sunk in pale greenish-brown chloritic schist. From the southern working, a fair-sized pit, the whole of the reef has been removed. In the more northerly workings, some shallow pits and a long shallow trench, a good-sized quartz reef is exposed to the depth (at present) of 3 or 4 feet at the utmost. The quartz is white, but shows a fair number of cavities filled with earthy limonite, probably derived from the decompo-

sition of enclosures of chloritic minerals. Pyrites is very rare, occurring only in very minute cubes or specks. Bright spangles and films of red hæmatite are common. Several washings were made from scrapings of the pit sides, and in each case resulted in a small show of rich-coloured gold. This concludes the survey of this group south of the Kávéri.

The well-known *Bellibetta* and its environs contain a considerable number of large and well-defined reefs, to which a large amount of attention had been paid by the old native miners. Bellibetta, or the silver hill, is the highest of a group of moderate-sized hills rising on an outlier of the auriferous series, rather more than 20 miles N.W. of Seringapatam, and 3½ S.W. of Krishnarájpet. The principal old workings are situated on the northern spur of Bellibetta, and consist of several large pits and a variety of smaller ones, with several small shafts and passages. Some are a good deal obstructed by jungle growth and all to a great extent choked up with débris, which makes it quite impossible to be certain as to the depth they were carried to. Dumps are numerous but not proportionate in extent to the size of the workings, so it is probable that much of the auriferous quartz was carried away to be reduced to powder elsewhere. The mass of Bellibetta consists of chloritic schist, the beds of which dip westward at a high angle, the strike being slightly west-of-north. They show considerable contortion. They are underlaid to the east by a bed of very coarse steatitic schist, on which the village of Katargatta stands. The run of the majority of the reefs is a little west-of-north, but one or two run east and west. To the south-west of Katargatta village is a very large reef of pale blue and white quartz which extends north-westward up to the slope and appears to join the set of reefs on top of the northern spur of Bellibetta in which the great workings have been carried on, but a considerable space between them is covered up by débris and talus at present and the connection cannot be proved positively. No workings have been made along the lower part of this great reef, but to the south and south-west of it I noticed a large number of small workings and dumps. A not very important series of old shallow works with dumps occurs on the ridge north of Bellibetta, and here washings gave a very poor show of gold. A large and well-marked reef forms the crest of this ridge, but it is very white and hungry-looking and contains no enclosures but a very little chlorite. The country rock is a curiously felted fibrous hornblende schist, with a small admixture of chlorite. A few hundred yards to the south-west, in the jungle on the left bank of the stream flowing into the little Katargatta tank, a bare sheet of very light-coloured rocks, apparently a quartzite, is exposed, on which are many score of small saucer-shaped holes, evidently made by pounding the quartz to reduce it. None of the "mullers" or hammers used in the process were found here. Half a mile north of Katargatta village lie some important quartz reefs and a large number of old workings. The reefs form the edge of a ledge formed by the eastern ridge of the auriferous rocks, Bellibetta being the western ridge rising out of the outlier. The reefs, which are very large and well-marked, consist of pale blue and bluish-white quartz. I saw no indications of any recent deep prospecting along these reefs, the eastern of which is exposed for nearly a mile and the western for about ¼

mile. About $\frac{3}{4}$ of a mile to the northward of these great reefs is a line of old workings. They are mostly large trenches, so greatly filled up with soil and grass that no signs of any reef can be made out. They present every appearance of great age. The country rock is also almost entirely masked by soil and vegetation ; when seen, it consisted of a talcose hornblende schist. Very little quartz is seen lying about, and it looks as if the lodes had been extracted bodily. I cannot confirm Mr. Lavelle's asserted discovery of silver ore on Bellibetta, having been unable to find any sort or kind of argentiferous mineral there ; still there can be no doubt that it is a gold-field of very great promise and deserving of the closest examination by deep prospecting on an ample scale. The great reef on Bellibetta, if proved sufficiently auriferous, could easily be mined to considerable depth by simple quarrying, and for this reason among others I think Dewan Purniah's want of success in mining for silver here was due to the want of ore rather than any other cause. Very near the northern extremity of the Bellibetta outlier is a small group of small shallow pits and dumps. They lie on both sides of the Mysore-Hassan road, about $\frac{3}{4}$ of a mile north-west of *Pura*. Two small reefs were noted, but neither of them looked promising, they being white and hungry. The country rock east of the road is a remarkable hornblende schist, which shows a very pretty felting of the fibre in stellate points with curved radiations. North of the Bellibetta outlier comes a tract of micaceous granite-gneiss, with some hornblende schist bands and occasional trap-dykes extending up to and beyond the famous Jain temple of S'ravan Belgola, and some four miles further north-east, where what appears to be a tiny outlier of the auriferous rocks shows close to the little village of Kempinkote in Channarayapatna taluq. The *Kempinkote* workings consist of one huge pit close to the village, a small pit about 300 yards to the south-east, and three or four small shallow excavations a mile to the north-east. The great pit, which is by far the largest excavation of the kind I have seen in India, is dug out of hornblendic and steatitic schists, a good deal contorted but having a general strike to the northward. Not a trace of any reef is visible *in situ*, and but very few lumps of quartz remain in the pit. This may very likely be explicable by the fact that it contained free gold, and that every good-looking bit was carried off long ago to be crushed elsewhere. I examined every bit of quartz I could see, but had not the good fortune to find any free gold. A washing of the scrapings of the side near a small exposure of the steatitic schist gave a very rich show of gold in proportion to the quantity of stuff washed. The gold was very fine-grained and of excellent colour. A washing at the small pit to the south-east gave a very poor result. The country rock here is also a steatitic schist very similar to that of the big pit. A few small lenticular masses of bluish-white quartz occur on the east side of the second pit, but are too short to be regarded as true reefs. The small excavations lying to the north-east of Kempinkote have been made in chloritic schist abounding with small cubical cavities full of reddish limonite. It is impossible to offer any positive opinion as to the Kempinkote gold prospects, no reef being visible in the

great pit. The latter should be cleared out to see whether the reef has been entirely worked out or not. The length and width of the great pit is so great that it is quite possible the old miners really descended to a great depth before stopped by water or other difficulties they could not compass with their limited mechanical appliances. The great size of the old working shows, however, that the old miners found the place worth their attention for a long period. Overlying the chloritic schist which forms the main mass of the low rise south-east of *Nuggihalli* is a thin bed of hæmatitic schist, the débris from which forms a wide-spread talus. This iron-strewn knoll appears to be the southern termination of the Tagadur-betta outlier, unless the auriferous rocks make a considerable sweep to the west, for the rocks along the direct path from Kempinkote to Nuggihalli belong to the gneiss. To the northward the hæmatite band thickens considerably, and may be traced for nearly a mile, and may very likely represent the great iron beds which form the crest of Tagadurbetta itself. The rock shown in the quarry about $1\frac{3}{4}$ miles N.N.E. of Nuggihalli is of doubtful geological age, and is separated from the Tagadurbetta band of the auriferous schists by a band nearly 2 miles in width of granite gneiss. The workings described by Mr. Lavelle as occurring one mile north of the village, were not seen by me, nor are any indications of them given on his maps. Two pits I was taken to at about $\frac{1}{2}$ to $\frac{3}{4}$ of a mile W. and N.W. by W. of Nuggihalli, appear to me to have been quarries for rubble stone, not excavations made for any mining purposes, for no signs appear either of reefs or dumps in either case. They are situated just within the western boundary of the schist outlier, and lie near the path leading from Nuggihalli to Virupákshipur. A mile and a quarter N.N.W., and just at the head of the valley running north-east from the *Tagadurbetta* hill, begins a set of old workings which occur at intervals through the scrub jungle for rather more than half a mile. The workings are all very shallow and look as if they had been early abandoned. The reefs seen run in the strike of the country rock, which bends about from north and south to north-west and back to north again. None of the reefs here are of any length or great thickness. The quartz they consist of is white and hungry-looking, and the washings obtained were not encouraging in quantity, though not so small as to make me condemn this gold-field as unworthy of further attention, for the country rock, chloritic schists with intercalated hæmatitic bands, is favourable to the occurrence of gold. The crest of Tagadurbetta consists of two good-sized beds of massive hæmatitic rock, which are one source of the great hæmatitic talus which covers the eastern slope of the ridge. The southern extension of these beds is very soon masked by surface deposits, but to the north they extend about a mile as low but conspicuous mural outcrops. How much further they extend I could not say, but it is not all improbable they may run considerably further, or even join the *Mallenhalli* outlier, 8 miles to the N.N.W. These workings lie a mile south of the high road leading from Hassan to Tiptur, and about 10 miles south-west of the latter town No reef is seen in connection with the large pit, nor is the country rock exposed just here, but close by it consists of hornblendic schist underlying a green micaceous gneissoid schist,

and fragments of true quartzite were observed lying about in some quantity, confirming the Dharwar age of these beds. A moderate show of gold was obtained by washing. A little to the northward of the pit is a large reef of rather good-looking bluish-white mottled quartz. The reef shows for nearly 100 yards, and is from 12 to 15 feet thick on the surface. The quartz shows no included minerals, but testing in depth might very probably show good results. The schistose rocks seem to stop near Mallenhalli, and only gneissic rocks were noted between the village and the next auriferous locality, *Jalgaranhalli*, 3½ miles N.W. by N. This consists of a small and rather shallow pit with a number of date-palms growing in and around it. No reef is seen traversing the pit, on the east side of which is an outcrop of the stellately felted hornblende rock seen at the Pura workings at the north end of the Bellibetta outlier. A wash of scrapings from the side of the pit gave a fair show of fine gold, sufficient to recommend that it be more fully prospected and tested than has as yet been done. The *Belgumba* auriferous rocks are, I believe, the northerly extension of the beds seen at Jalgaranhalli, but time did not allow of my examining the intermediate tract of country, and I visited the Belgumba tract from the north. This group of old workings lies 7 miles south-east of Arsikere, and 1¾ miles south of the 99th milestone on the Bangalore-Shimoga road. The highest point of ground due south of the 99th mile is the northern extremity of the Belgumba outlier of the auriferous rocks ; the southern end, as above explained, forming to all appearance the Jalgaranhalli auriferous patch. The workings, with one exception, lie along the westerly slope of a low ridge extending S.S.E. from the high point[1] just referred to. The strike of the schist beds is as nearly as possible S.S.E., and they occupy a band about ½ a mile in width abreast of the workings ; further south the band seems to widen out. A large but generally white and hungry-looking reef runs along the ridge on its western slope just below the summit, and another similar one crests a knoll a little to the south of the most southerly pit. They run parallel with the strike of the chloritic and hornblendic schists forming the country rock. The northern reef shows bluish colour in parts. The considerable size of the old workings is the only evidence in favour of their having been productive. They are much obscured by rubbish, and in their present state it is impossible to say whether or not the reefs they were worked on continue in depth. The prospects of future success at this place are not very encouraging. The country northward from the Trigonometrical Station hill up to and beyond the Shimoga road is all gneissic. At *Gollarhalli*, about 6 miles to the south-west of Belgumba, is a very large old working, in shape like a very rude horse-shoe, opening northward. The depth of the working is nowhere great, and at the southern part of the curve very shallow. The curve encloses a few small detached workings of no interest or importance. Dumps occur pretty numerously all along the sides of the horse-shoe, but no reefs are visible in any part of the workings except at the southern apex, where a large but very ill-defined reef of bluish-white colour shows up for a few yards ; but it is very easy to overlook it, as it is greatly obscured by rubbish. A

[1] This point is crowned by a Trigonometrical Station, 2,982 feet above sea-level.

very barren-looking reef of massive white quartz occurs some little distance north of the western branch of the horse-shoe. Neither of these reefs has been tested to any depth. This outlier of the auriferous rocks, if such rocks they are, is a very small one, and gneissic rocks occur all around at very small distances. Very little is seen of the country rock except at the eastern end of the works, where an immensely tough hornblendic rock with a soapy steatitic weathered surface occurs. Small outcrops of hornblendic schist peep up here and there in the workings. The washings that I had made at the western extremity gave only a small show of gold, but from scrapings in the deepest part of the eastern arm of the working I got a very fair show. The locality appears to me to be deserving of closer prospecting than it has yet undergone. Three and a half miles south-south-west of Arsikere are the old *Yellavari* workings, which lie in the low ground half a mile or so east of the village, and are excavated in hornblendic schist with intercalated bands of chlorite schist, which I refer but doubtfully to the auriferous system. The quartz seen is bluish-greyish-white in colour, very saccharoid in texture, and much iron-stained in part from the decomposition of included specks of hæmatite. Specks of powdery kaolin occur, but no visible gold or any sulphides. The reef lies between bands of micaceous and hornblendic bands of gneiss on the east and west respectively. A washing from the casing of the reef gave a very small show of gold. I feel justified in recommending further testings and a search for the reef, which will probably be re-discovered if the working is cleared out to the bottom. Whether there is any connection between the Yellavari and Gollarhalli patches of auriferous rock I cannot say ; the country is too jungly, and the rocks at both places seen in such very small outcrops that the eye can only follow them for a few yards. I noted no sign of any extension of the schists northward or north-westward past Arsikere. *Karadihalli* is the last of the auriferous localities included in the west-central group. The workings lie on the north and south-east slopes of a low ridge, the centre of which is formed by a small granite gneiss hill, locally called the Chotnare Maradi, around the base of which lie beds of steatite and hornblendic rock of doubtful age, geologically speaking. As to reefs, only one small one was noted near the southern set of pits, and this is a white and hungry-looking one running for some 60 paces N. 5° W. Northward of the Chotnare Maradi are two large reefs deserving of further examination. The first, which lies due north of the hill, runs north and south, the second, which shows much more conspicuously, lies a couple of hundred yards further north-east and runs N. 20° W. The great wealth in gold which Mr. Lavelle ascribes to this part of the country has, I think, yet to be proven. The auriferous tracts already known are very small in extent, and, as far as surface study of them goes, they do not appear to be of the highest class.

(*Tarikere to Dávangere*)

Western Group.—No old workings or unworked auriferous localities were brought to my notice in the southern part of the western band, but since

the completion of my tour I have seen a statement[1] that a vast number of old workings occur all over the hills to the north-west of Halebid. These old workings should certainly be looked up, both on geological and economic grounds. The western group is numerically far poorer in auriferous localities than either of the others, and they are scattered widely apart. The sands of several of the small streams running down from the hills west of the village of *Chiranhalli* in Tarikere taluq are auriferous. A washing in the stream flowing through the little tank known as the Huggisiddankatte gave a good show of rather coarse gold. A very fair show was next obtained at the junction of the same stream with another coming in from the north, and a small show from the bed of the northern stream, which is crossed by a good-sized quartz reef running N.N.E. This was the only reef seen, but other reefs doubtless occur among the hills west of the Huggisiddankatte. The country rock consists of steatitic and very pale chloritic schists, full of cubical crystals of pyrites, some of which are replaced by pseudomorphs in limonite, and others are quite fresh and bright. Well-shaped octohedra of magnetic iron are also to be found in the schists. The geological features are all favourable to the occurrence of gold, and the locality is worthy of very careful prospecting. At *Malebennur*, the sands of the little stream which falls into the Komaranhalli tank next beyond the ridge underlying the south end of the tank bund are auriferous, and from a washing I made here I obtained a very good show of coarse-grained gold of excellent colour. The little stream drains the western slope of the ridge for about a quarter of a mile, and its whole catchment basin must be less than 100 acres. The greater part of this consists of chloritic schists which in their upper part contain many laminæ and small nests of crystalline limestone. The chloritic schists are underlaid by trap, to all appearance a contemporaneous flow. This trap extends westward far beyond the basin of the small stream. To the east the chlorite schist is overlaid by a hæmatitic quartzite bed of considerable thickness, beyond which I did not follow up the series. No reefs are to be seen within the basin of the little stream, but many small veins of blue quartz occur traversing the chlorite schist and also the overlying hæmatite bed. Some of the larger of these veins on top of the ridge have an east-to-west run. The western slope ought to be very closely tested by costeaning in order to ascertain the source of the gold dust found in the stream. Trenches carried through the talus-covered parts of the slope may also be tried in order to find, if possible, any larger reefs. As already stated, a trap formation occupies the bottom of the valley west of the auriferous stream. This trap is much obscured by soil and talus, and the sequence of the rocks is not to be made out near the road. Where the ground begins to rise westward, and rocks crop out, is a quartzite so much altered by crushing and weathering that it has in parts assumed quite a gneissoid appearance. Underlying this comes a thick band of dark schist, chiefly argillitic, and this in its turn is underlaid by a great thickness of pale green and grey schists, chlorito-micaceous, in variable character. A few

[1] In an exhaustive work on the Occurrence and Extraction of Gold, by A. G. Lock.

beds of quartzite are intercalated here and there, and many very irregular veins of white and pale bluish quartz are to be seen traversing the schists. Gold occurs at *Anekonda*, a little over half a mile N.E. of *Davangere* travellers' bungalow, in form of dust obtained by washing the red gritty soil lying against the rock, which here forms a ridge rising only 20 feet (if as much) over the surrounding country. The rock is a brecciated quartz run, not an ordinary reef. Runs such as these are common in many parts of the gneiss in the Ceded Districts and elsewhere, but I have never met with one within the auriferous (Dharwar) series, nor have I ever come across such a brecciated quartz rock that had been regarded as auriferous by the old miners and mined as such. A washing of the red soil exposed in the shallow bed of a small stream falling into the Anekonda tank, a few hundred yards further south, also yielded a small show of gold. The source of this gold I believe to lie in the high ground to the south.

The elevated tract of the auriferous rocks of which the Bababudan mountains form the centre is one well deserving great attention both from the geologist and the mining prospector, it being an area of great disturbance, the rocks being greatly contorted on a large scale, and on the north and south sides at least of the area much cut up by great faults. Regions of great disturbance are in many cases extra rich in minerals, and it is very likely that such may be the case here. It is only of late years, owing to the extension of coffee-planting, that this mountain region has become accessible. Before that it was covered by vast impenetrable forests which hid everything. These are now penetrable in many directions, and the modern prospector has opportunities which did not exist before. The eastern part of the mountain tract culminating in the Bababudan mountains consists of huge flows of trap-rock (diorite) with intercalated beds of dark argillitic schists capped by quartzites and hæmatites, which two latter form the summit of the Bababudan mass. Mr. Lavelle mentions magnetic iron ore and "chrome" (presumably chromic iron) from the Bababudans, but unfortunately does not give any localities, so it was impossible to inquire further into their occurrence. The chromic iron would be valuable if found in good quantity and easily mined. The most southerly of the auriferous localities in the western set is *Suladamaradi*, a small hill 2 miles south-east of Tarikere. The hill consists of chloritic schist in highly contorted beds. The great white reef on top of the hill participates in the contortions, and is bent into a very remarkable flat sigmoid curve. This and the other reefs occurring on the north side of the hill are very white and hungry-looking. The only enclosures in the quartz I noted, after careful search, were small spangles with rich green chlorite. There were no sulphides, nor any other mineral, the chlorite excepted. The indications of the Suladamaradi rocks are anything but favourable, and the old miners evidently thought so too, for there are no signs of old workings. On the left bank of the Bhadra river, 13 miles south-east of Shimoga, on washing in the rain gully draining the south side of *Honnehatti* hill (Trig. Station), I obtained a very good show of moderately coarse gold. The mass of the hill consists of chloritic schist having a N.N.W. strike, and the beds may be seen extending for

miles in that direction, after which they trend N.E. Several large reefs are to be seen running N.N.W., or in the line of the strike of the country rock. Their only apparent fault is their great whiteness. No workings are seen on the south side of the hill, but on ascending the Honnehattimaradi on its eastern side, I came upon several unknown old pits and one shaft, which from their bearing had evidently been sunk to follow one of the reefs. The workings had evidently been continued to some depth, and were therefore in all probability fairly remunerative. Honnehatti appears to me to deserve very marked attention from earnest prospectors. *Palavanhalli* :—This well-known auriferous tract, which with the adjacent Kudrikonda tract constitutes the Honnali gold-field, was first visited by me in 1881 and its geology very carefully worked out and reported on (see above, p. 41). My opinion of the *Kudrikonda* tract was published in the paper just referred to. I believe my geological inferences to have been correct, and that the temporary non-success of the mine has been due mainly to want of capital wherewith to push on the works in depth. So long as sufficient quartz was raised to keep the stamps at full work, the mine paid its expenses. Should more capital be raised and working be resumed, I fully expect the yield of gold will improve in depth, as has been the case in so many deep mines in Australia. Without having the plans to refer to, and the mine itself being full of water owing to the stoppage of the works, and therefore inaccessible, I could not form any opinion as to the merits or demerits of the plan of work which had prevailed, but I cannot help thinking that if a new engine of sufficient power be provided to keep the mastery over the great volume of water flowing through the mine, it will soon be possible to sink an exploratory shaft to find the lode, which has been thrown by a fault in the country rock. It would be a great mistake to abandon further work without having made an earnest search for the missing lode, as from the structure of the country it is very unlikely that the throw of the fault can be a great one.

Non-Metallic Minerals.

The pure gold-prospecting work left me no leisure to devote to any non-metallic minerals, excepting such as actually fell in my way.

Emery.—Near Nadapanhalli a few small masses of dirty brown rock, measuring less than 2 cubic yards in the aggregate, are seen by the side of a field road. There are no signs of any working, so I suppose only loose pieces were taken away to test its commercial value, which cannot be great. The emery is very impure and of poor quality, and with good corundum obtainable in quantity in various other parts of the country is not deserving of any attention.

Asbestos.—Only one asbestos-yielding locality came under my notice, to the west of Bellibetta. The matrix rock in which the asbestos really occurs is not seen in the little pit from which the stone had been dug. The surface of the country just here consists of reddish kankar underlying red soil. The asbestos I saw had been included in the kankar, having apparently been weathered out from its original matrix, whatever that may have been. The

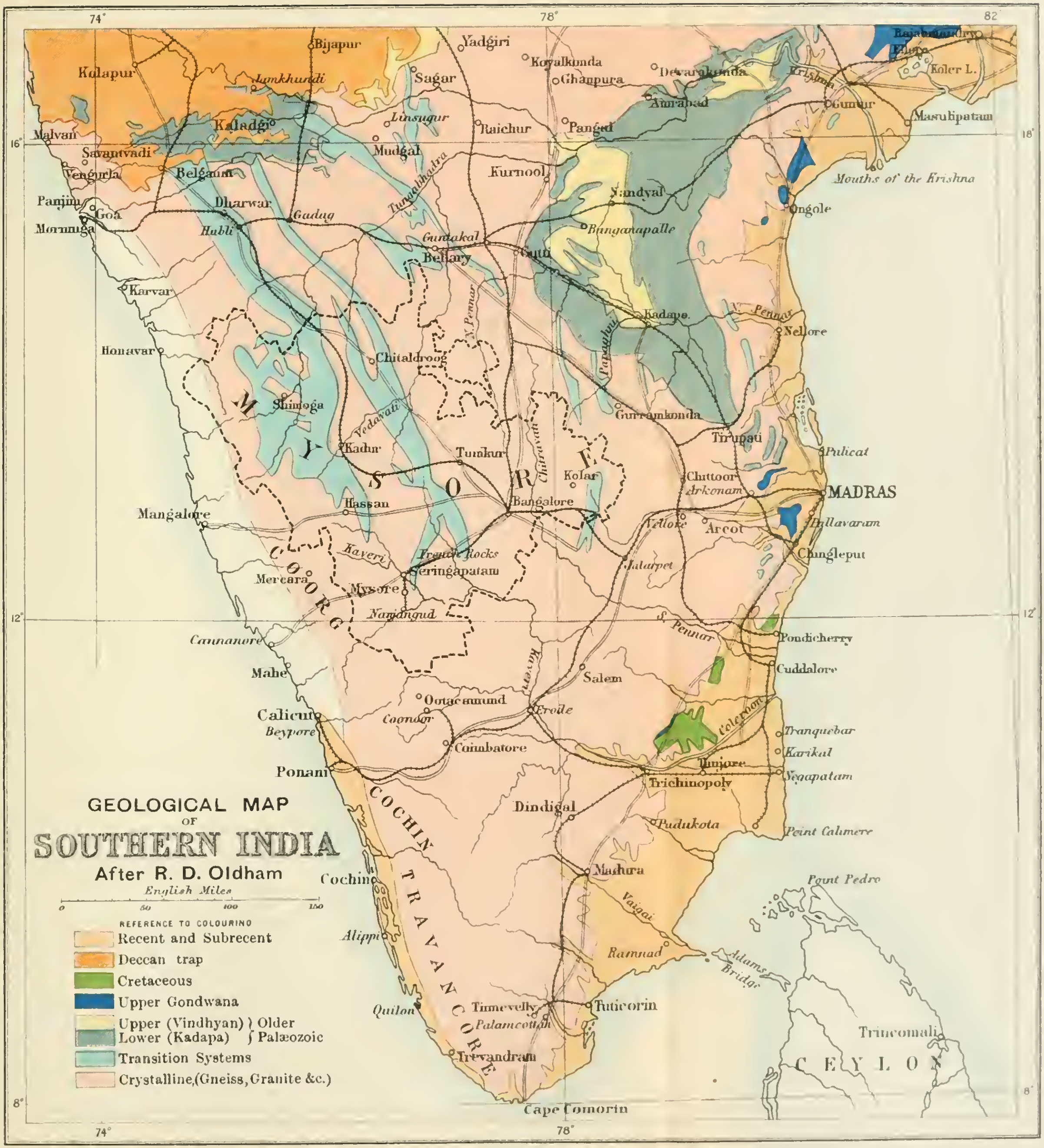
show of asbestos at the pit was very small and of inferior quality. The largest pieces showed a coarse fibre, 4 to 5 inches long, cream-coloured, and of dull lustre. I only noticed one piece with fine silky fibre and silvery-white colour. In the present condition of the pit, it is impossible to form an opinion as to the capabilities of the place.

Kaolin.—Kaolin is mentioned by Mr. Lavelle as occurring in several places and of good quality and colour, but he does not state whether it is available in large quantities. To be of real value commercially it must be of the highest degree of purity and free from all iron-mould or stain. To raise it on a large scale requires the presence on the spot of a large supply of *perfectly limpid water*, with which to work the rock by hydraulic sluicing, and facilities for the construction of large settling pits, which must be protected from the influence of ferruginous dust of any kind. In Europe, china clay works are found to pay only where the industry can be carried out on a really large scale. I have never yet seen in India a place combining the two most essential requirements for a successful industry, namely, a large development of kaolinized granite and a sufficient supply of limpid water. The limpidity of the water is a *sine qua non* for success. There is no demand for large quantities of kaolin in India, and speculators would do well to make sure before starting such an industry in India that they could find a profitable market for their produce in Europe or elsewhere.

Marble.—I noticed a good bed of grey crystalline limestone running north and south across one of the gullies near the main gold pit at Holgere. The limestone lies half way down the slope to the Holgere tank, and is of good quality, and would be a useful stone for decorative and monumental sculpture. Immense quantities of grey crystalline limestone, divided by partings and small beds of quartzite, occur on the east side of the main ridge lying between Chiknayakanhalli and Dod-Rampura. The limestones are several hundred feet thick and deserve to be prospected, for they may very likely contain beds of other colour than grey which would be valuable in sculpture.

Granite.—A very beautiful variety of granite gneiss, eminently fitted for cutting and polishing on a large scale, forms the mass of Chotnaremaradi in the little Karadihalli gold-field, two miles east of Banavar. The rock is remarkably free from joints, and monoliths of great size could easily be quarried. It is by far the handsomest granite I have seen in Mysore.

Porphyry.—A great dyke of beautiful porphyry traverses the hills east of the Karigatta temple overlooking Seringapatam. The porphyry, which is of warm brown or chocolate colour, includes many crystals of lighter coloured felspar and dark crystals of hornblende. The stone would take a very high polish, and for decorative purposes of high class, such as vases, panels and bases for busts and tazzas, etc., it is unequalled in South India, and deserving of all attention. If well polished it fully equals many of the highly prized antique porphyries. The dyke is of great thickness and runs for fully a mile, so is practically inexhaustible. Blocks of very large size could be raised, and, from the situation of the dyke on the sides of two steep hills, it would be very easy to open up large quarries if needful.


GEOLOGICAL MAP
OF
SOUTHERN INDIA
After R. D. Oldham
English Miles
0 50 100 150
REFERENCE TO COLOURING
Recent and Subrecent
Deccan trap
Cretaceous
Upper Gondwana
Upper (Vindhyan) } Older
Lower (Kadapa) } Palæozoic
Transition Systems
Crystalline,(Gneiss, Granite &c.)
74°
78°
82°
16°
12°
8°
Bijapur
Yadgiri
Kolapur
Sagar
Malvan
Savantvadi
Vengurla
Belgaum
Dharwar
Panjim
Goa
Hubli
Gadag
Karvar
Honavar
Mudgal
Raichur
Kurnool
Nandyal
Ongole
Mouths of the Krishna
Masulipatam
Guntur
Koler L.
Bellary
Gutti
Kadapa
Nellore
Chitaldroog
Shimoga
Kadur
Tumkur
Kolar
Bangalore
Hassan
Mangalore
Chittoor
Arkonam
MADRAS
Pulicat
Vellore
Arcot
Chingleput
Tirupati
Gurramkonda
MYSORE
COORG
Mercara
Mysore
Seringapatam
Nanjangud
Cannanore
Mahe
Calicut
Beypore
Ponani
Ootacamund
Coonoor
Coimbatore
Erode
Salem
Pondicherry
Cuddalore
Tranquebar
Karikal
Negapatam
Tanjore
Trichinopoly
Dindigal
Pudukota
Point Calimere
Madura
Cochin
Alippi
Quilon
COCHIN
TRAVANCORE
Ramnad
Adams Bridge
Tuticorin
Tinnevelly
Palamcottah
Trevandram
Cape Comorin
Point Pedro
Trincomali
CEYLON

METEOROLOGY

The Hindus divide the year into six seasons. Of these the first, *vasanta ritu* or spring, commences with the opening of the Hindu year in March. It is the season of love and pleasure, and is a favourite theme of Indian bards. The weather is serene and clear, the farmer's occupations are mostly over, and he has time to celebrate the yearly festivals of his gods and the marriages of his kinsfolk. The mango is then covered with blossom, and the landscape is gay with the beautiful and sweet-scented flowers of the *kakke* or Indian laburnum. The southerly breezes that blow during the night are the voluptuous zephyrs of this vernal season. The *gríshma ritu*, literally sweating season, is the second. It is the hottest part of the year, the sun being nearly vertical. The dust of the arid fields is frequently carried up in small whirlwinds, forming what are called *pisáchis* or devils. Nightly illuminations of the ghats and hills are seen, the result either of spontaneous combustion from the friction of bamboos against each other, or of a spark blown into the long withered grass which covers the slopes. The heat is intense and the air often still and stagnant. The sunset sky glows with the most fervid tints. It is the time of cyclones. Thunder-clouds suddenly gather, and—preceded by storms of dust, which sweep impetuously over the surface of the ground, obscuring the view for miles,—the rain, accompanied with vivid flashes of lightning, close followed by startling claps of thunder, descends in large and distant drops, often mixed with hail. These short-lived tempests prelude the grateful bursting of the monsoon, and introduce the *varsha ritu* or rainy season. The south-west monsoon blows steadily during this period and should bring with it abundance of rain. The rivers are swollen and sometimes impassable for days. The face of nature is clad in green and the ploughed fields receive the precious seed. The *s'arad ritu* or autumn next succeeds, during which the sun being again vertical in his southern declination but shedding a moderate heat, the fruits of the earth ripen. This season closes with the change of the monsoon, which is marked by the loudest thunder and heaviest rain of the year, the wind settling steadily in the north-east. The largest tanks are often filled in a few hours and a store of water obtained that will last over the succeeding dry months. The *hemanta ritu* or winter next sets in, with chilly foggy mornings and bright sunny days. The fields are reaped and the grain stacked. The *s'is'ira ritu* or cold season concludes the circle of the year. Piercing north-east winds dry up all trace of moisture, and clouds

of dust arise from every movement over the thirsty ground. The skin is parched and feverish. But the larger trees put forth new leaves or cover themselves with a mass of gorgeous blossom.

The year in Mysore may, however, with sufficient accuracy be divided, according to another Hindu system as old as the Vedas, into three seasons—the rainy, the cold, and the hot. The first commences with the bursting of the south-west monsoon, at the end of May or early in June, and continues with some interval in August or September to the middle of November, closing with the heavy rains of the north-east monsoon. It is followed by the cold season, which is generally entirely free from rain, and lasts till the end of February. The hot season then sets in, towards the beginning of March, and increases in intensity to the end of May, with occasional relief from thunder-storms.

The close of the rainy season in November is marked by dense fogs which prevail all over the country during December and January. They begin about three in the morning and last till seven, when they are dispersed by the heat of the sun. But in some parts fogs or rather mists follow the earlier rains. Thus about Chitaldroog from August to October the hills are obscured till nearly ten in the forenoon.

The temperature is the most equable during the rainy months, the range of the thermometer at Bangalore at that season being between 64° and 84°. In the cold season the mercury falls there as low as 51° in the early morning, and sometimes rises to 80° during the day. The minimum and maximum in the shade during the hottest months are about 66° and 91°, or in extreme seasons 96°. The observations registered in the several Districts are given in Vol. II.

Situated midway between the eastern and western coasts, Mysore shares in both monsoons, the south-west and the north-east. The rainfall ranges from 200 inches or more[1] a year in the Western Ghat regions, to little more than 10 inches in the north centre. But these are extremes that apply only to limited areas. The excessive rain of the Malnád rapidly diminishes eastwards, and from 30 to 36 inches may be accepted as the general average for the greater part of the country. The least quantity of rain falls throughout the tracts lying north-east from the Baba Budan range along both banks of the Vedavati or Hagari to the Chitaldroog frontier of the Province. Compared with the rest of the country this may be termed a rainless district, and the scanty fall is attributed, no doubt correctly, to the influence of the towering mass of the Baba Budan chain intercepting the moisture with which the south-west monsoon wind is charged.

[1] Mr. R. H. Elliot mentions that no less than 291·53 inches fell between April and the end of September (1893) at a cardamom plantation on the crests of the ghats.

The annual rainfall may be conveniently distributed into four periods, namely :—

The cold weather rains ...	... December to March.
The hot weather rains ...	... April and May.
The south-west monsoon ...	... June to September.
The north-east monsoon ...	... October and November.

The *cold weather* rains are insignificant, scanty in quantity, and not much needed for the standing crops. But they are useful in keeping up the pasture supply of the country. The *hot weather* rains (sometimes called mango showers) are of the accidental kind ; heavy short storms from the east. They are very important to successful agriculture, as a copious fall replenishes the tanks and enables the cultivators to prepare the land for the following *south-west monsoon* rains. These are perhaps the most essential for the country, which, on account of its general dryness, requires the steady drizzling and persevering rains of this season to make the soil productive. The *north-east monsoon* rains are especially important for filling the tanks and providing a store of water that may last over the rainless months.

The following averages for each District have been calculated for each season, based on the registered fall in the various taluqs in inches and cents for twenty-four years, from 1870 to 1893 :—

District.	Cold Weather. Dec.—Mar.	Hot Weather. Apr.—May.	S.W. Monsoon. June—Sept.	N.E. Monsoon. Oct.—Nov.	Annual Average.
Bangalore	1·32	4·80	15·64	7·88	29·64
Kolar	1·08	3·69	13·53	7·06	25·36
Tumkur	0·85	4·38	13·66	6·69	25·58
Mysore	1·63	6·98	10·21	8·36	27·18
Hassan	1·32	6·42	19·37	8·15	35·26
Shimoga	1·03	5·58	48·96	7·50	63·07
Kadur	1·29	6·29	43·96	9·39	60·93
Chitaldroog . . .	1·10	3·72	10·40	6·69	21·91
Average for the Province	1·20	5·23	21·96	7·72	36·11

There seems to be a periodicity in the rain-fall, particularly well marked at Tumkur, which is situated at an equal distance from either coast and between the eastern and western mountain systems. A reference to the observations there recorded will show that for a considerable period every sixth year was one of abundant rain. This rule is not exhibited with equal precision in the register of other Districts. But there seems to be a general impression that about one year in five is a

good season for rain. And this accords to some extent with scientific discoveries; for a connection or correspondence has been traced between the terrestrial rainfall and the solar spots which gives a period of five and six, or of eleven, years during which the mutual variation is more or less constant.[1]

A special department has now (1893) been formed for meteorology in Mysore, with a well-equipped Observatory at Bangalore, where reports will in future be received from 151 rain-gauge stations. But meanwhile the following information from Mr. H. F. Blanford's book[2] is of interest. Writing of the summer monsoon, he remarks that "in Mysore, the Ceded Districts of Madras, the Deccan and Hyderabad, more rain falls when the strength of the monsoon to northern India relaxes, than when the interior plateau of the peninsula is swept by a strong current from the west coast." The mean annual relative humidity of the Mysore Province is set down as 66, that of Malabar and Coorg being 79, and of the Carnatic 67. The mean monthly rainfall at the following stations, based on the records of 50 years, is thus given, in inches and cents.:—

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Bangalore	0·2	0·1	0·6	1·3	5·0	3·2	4·0	5·9	6·3	6·4	1·9	0·7
Mysore	0·1	0·1	0·7	2·2	5·6	1·9	2·3	3·2	3·9	6·4	1·6	0·5
Shimoga	0·1	0·1	0·3	1·8	3·3	4·7	6·6	4·2	3·1	5·0	1·2	0·4

The maximum is 25·9 at Shimoga in July, 19·5 at Bangalore in October, and 15·3 at Mysore in July.

Another important item is the estimated mean rainfall, as follows, on the several river basins. The figures, it must be remembered, include the portions that are beyond the limits of Mysore. Pennaur (N. Pennár), 26 inches; Pálár, 36; Panar (S. Pennár), 38; Kávéri, 44; Krishna above junction, 59; Tungabhadra, 43.

"Earthquakes"—Dr. Heyne observes—"are never violent and by no means frequent in this country, occurring only about once in five years." My own experience does not enable me to confirm this latter statement, but shocks have been occasionally felt in the neighbourhood of the hills running from Kankanhalli to Madgiri. From an inscription at Nelamangala, it appears that an earthquake occurred there in July, 1507. "I felt one at Túmkúr," writes Dr. Heyne, "on the 23rd of October, 1800. It is remarkable that at the same time a violent hurricane raged along the coast from Ongole to Masulipatam. The shock was felt at Bangalore

[1] Generally speaking, there appears a tendency with maxima (of sun-spots) to anticipate the middle time between the consecutive minima, the interval $11·11^{y}$ being divided into two unequal sub-intervals of $4·77^{y}$ and $6·34^{y}$.—Chambers, *Astron.*, 17.

[2] "Climates and Weather of India," pp. 211, 50, 353, 284.

and in most other parts of Mysore; and it was stronger in the south than where I was. It seemed to come from the north, proceeding southward along the inland range of hills, and to be guided farther by those of which Sivaganga and Savandurga are the most conspicuous." Colonel Welsh says, with reference to Bangalore:—"On the 29th of December (1813), we experienced a pretty smart shock of an earthquake, which was very general in its effects all over the cantonment; it was accompanied by a rumbling noise, like a gun-carriage going over a drawbridge, and appeared to come from the westward. Our roof cracked as if a heavy stone had been thrown upon it, and every part of the house shook for some seconds. Some older and weaker buildings were actually shaken down, and the walls of others separated or opened out." An earthquake was felt at Tumkur in 1865, and several shocks at Bangalore on the 31st of December, 1881.

Aerolites or meteoric stones sometimes fall. On the 21st of September, 1865, one weighing 11½ lbs. fell near Maddur in the Mysore District. It is deposited in the Museum.

Cyclones in the Bay of Bengal occasionally extend their influence far inland. One of the 2nd of May, 1872, was very destructive in its effects; it blew a hurricane that overturned large trees even so far west as Coorg, and was accompanied by a deluge of rain. Again on the 4th of May, 1874, when a cyclone was raging on the Madras coast, a steady rain poured at Bangalore, which continued without intermission for about forty-eight hours. It had been preceded for several days by a still and hazy appearance of the atmosphere. At the end of November, 1880, just at the beginning of the ragi harvest, when but little was cut and the bulk of this most important crop was all but ripe, a great part of the State was visited by a storm of wind and rain of unusual severity, which did very considerable damage to the crops, and was the cause, moreover, of the breaching of a number of irrigation tanks. On the 16th of November, 1885, again, there was a continuous downpour lasting for more than forty-eight hours, but this was not of a violent character.

"Next to its sunny skies and its notorious and somewhat oppressive heat, perhaps no feature of the Indian climate," says Mr. Blanford,[1] "is more characteristic than the prevailing lightness of the wind." And to this cause, rather than to want of mechanical skill on the part of the cultivators, he attributes the absence of windmills in India. The average daily movement of the wind at Bangalore is put down at from 82 (Feb.) to 92 miles from October to March, 128 to 183 in May and August to September, 203 in June and 208 in July.

[1] *Loc. cit.* p. 30.

FLORA

The situation of Mysore within the tropics, combined with an elevation which gives it a temperate climate, and its almost complete environment by lofty mountain chains, are features which contribute to the formation of a rich and varied flora.

The *forests*[1] of the country, which yield a considerable item towards its revenue, have been estimated to cover a total area of 2,975 square miles, exclusive of scrub jungle which grows on much of the waste land. They may be roughly divided into *evergreen* and *deciduous* forests; which again are distributed in three distinct forest belts, of very unequal width, and running north and south. These are the *evergreen belt*, the *dry belt*, and an intermediate one, combining some of the features of both, which may be called the *mixed belt*.

The *evergreen belt* of forests is confined to the west, and comprises the country in the Western Ghats and below them, extending from the north of Sagar taluq to the south of Manjarabad. Its greatest width, which is at its northern extremity, nowhere exceeds from 12 to 14 miles, and at some points is not more than six. The tree vegetation is magnificent. Many of the hills are covered to their summits with heavy forest, while the valleys and ravines produce trees which can scarcely be rivalled in India,—so luxuriant is their growth, so vast their height, so great their size. In some parts the undergrowth is dense, elsewhere the forest is open, and on all sides trees with clear stems to the first branch of from 80 to 100 feet meet the eye.

The following are some of the more valuable trees growing in this belt[2]:—

Artocarpus hirsuta ... Wild jack ... ... Heb-halasu, hesava[3]

Good shade for coffee. Yields the anjeli wood of commerce. Wood hard and durable when well seasoned, yellowish-brown, close-grained. Much used on the western coast for house and ship-building, furniture, and other purposes. Weight about 35 lbs. per cubic foot.

[1] Originally based chiefly upon the Forest Report for 1869–70, by Captain van Someren, Conservator of Forests.

[2] The third edition of "Forest Trees of Mysore and Coorg," by the same, edited by Mr. J. Cameron, may be referred to for fuller information; or Watts' "Dictionary of the Economic Products of India."

[3] In common use the Kannada name is put into the genitive case, followed by the word *mara*, tree. Hence *heb-halasina mara*, *hesavana mara*: *dúpada mara* would be more intelligible to a native than the bare name.

Calophyllum tomentosum Poon spar ... ... Kuve, bobbi

Yields poon spars, which fetch a good price, and are used for masts. Wood reddish and coarse-grained. Weight 48 lbs. per cubic foot.

Diospyros ebenum... ... Ebony ... ... Kare, mallali

Heartwood black, very hard, durable, and takes a fine polish. Weight about 80 lbs. per cubic foot. In great demand for cabinet work, turnery, inlaying, and musical instruments.

Erythroxylon monogynum Red cedar ... ... Devadaru, adavi goranti

Heartwood dark brown and fragrant ; sometimes used as a substitute for sandal. From it is distilled a tar or oil used in Ceylon to preserve timber. Leaves and bark medicinal.

Garcinia morella ... ... Gamboge-tree ... ... Kankutake

The yellow pigment which exudes from an incision in the trunk is the true gamboge of commerce. Wood hard and mottled. Weight about 56 lbs. per cubic foot.

Lagerstrœmia flos-reginæ... ... ... Challa, maruva

Very handsome in blossom. Root, bark, leaves, and flowers used medicinally. Wood light red, strong, and very durable under water. Weight about 42 lbs. per cubic foot.

Soymida febrifuga ... Redwood ... ... Swámi mara

Bark used for tanning and as an inferior dye ; is also a febrifuge. Heartwood very hard and close-grained, reddish-black, very durable, not attacked by white ants. Weight about 76 lbs. per cubic foot.

Vateria indica ... ... White dammar ... ... Dúpa

Magnificent tree. Yields the gum-resin known as white dammar or Piney resin, locally used as an incense and varnish. A fatty oil from the seeds is employed like tallow for making candles. Heartwood grey, tough, moderately hard, porous. Weight 41 lbs. per cubic foot. Not much in demand.

The *mixed belt* of forest extends the whole length of the Province, from the extreme north of Sorab taluq to Bandipur in the south of Gundlupet taluq. It is very unequal in width, varying at different points from 10 to 40 or 45 miles. It includes the greater number of the timber-producing State forests, large tracts of District forests, and much sandalwood. In it are the káns of Sorab and other portions of Nagar, the areca nut and cardamom gardens of western Mysore, the coffee plantations of Koppa and Manjarabad, and the rich rice-flats of Ságar, Nagar, Tirthahalli, Chikmagalur and Heggadadevankote. The division between this rich and productive belt and the far less useful strip to the west of it cannot be very easily defined. The presence of a number of fine *nandi* and blackwood trees, which grow abundantly and attain great size on the eastern confines of the evergreen belt, form a sufficiently clear line. The eastern limit may be taken to be a line which, commencing near Anavatti in the north, would run south-east to half-way between Shikarpur and Honnali ; thence due south to Sakrebail, where

it turns due east till it reaches a point north of Lakvalli; thence south, through Lakvalli and along the eastern crests of the Baba Budans to Vastara; on through Pálya, and passing a few miles west of Arkalgúd and Peryapatna it turns south-east to Antarsante, and so by way of Kurnagal reaches Bandipur.

The tree vegetation varies considerably in the large extent of country comprised in this belt. All along the western confines, where it approaches the Ghats, trees proper to the evergreen forests occur frequently. The wild jack, the *dúpa*, the redwood and sometimes the poon are met with in varying quantities. But in the south portion of the belt, in the Mysore District, wild jack and poon are unknown. The following is a list of the more important trees found throughout this tract:—

Adina cordifolia ... ... Arasina tega

Wood yellow, moderately hard, even-grained. Seasons well, takes a good polish, and is durable, but liable to warp and crack. Weight 45 lbs. per cubic foot. Turns well, and specially used for small articles, such as combs, gunstocks, and ornamental boxes.

Albizzia lebbek ... ... Siris ... ... Bági

Heartwood dark brown; takes a good polish, and fairly durable. Weight 50 lbs. per cubic foot. Its use for domestic purposes considered unlucky in many parts, but used for picture frames, oil-mills, etc. Leaves a good fodder for cattle. Flowers a cooling application for boils.

Albizzia odoratissima ... ... Bilvara

Heartwood rich brown, tough and strong; seasons well, takes a good polish, and is durable when kept dry. Weight 50 lbs. per cubic foot. Used for wheels, oil-mills, and agricultural implements. Bark medicinal. One of the most valuable jungle trees for the use of the villagers.

Anogeissus latifolia ... ... Dindiga

Good fuel and charcoal tree. Sapwood yellow; heartwood small, purplish-brown, tough, very hard. Weight about 65 lbs. per cubic foot. Splits in seasoning and must be kept dry to last. Gum used by calico printers for dyeing purposes; green leaves employed for tanning.

Bombax malabaricum ... Silk-cotton ... ... Búruga

Wood soft, white, spongy, and, except under water, very perishable. Used to some extent for planking, packing cases, toys, floats, etc. A medicinal gum exudes from the trunk.

Chloroxylon swietenia ... Indian satin-wood ... Huragalu

Wood hard, yellow-mottled, and prettily veined, dark towards the centre; has a fine satiny lustre, and is well adapted for delicate cabinet work, carpentry, and turnery. Weight 56 lbs. per cubic foot. Heartwood said to be black, heavy, and not easily burnt. The wood is also very durable under water. Used for beams, posts, boats, etc., and in Europe for backs of brushes, stethoscopes, and fancy articles.

Cordia myxa ... ... Solle

There are three local varieties—kádu solle, kempu solle, and solle kendal—differing

in size, form, and colour of the fruit. The last is the Sebasten of commerce (a name said to be derived from sag-pistán, Persian for dogs' nipples). It is very mucilaginous and demulcent; given for coughs and chest affections. Wood grey, soft, porous, seasons well, and is fairly strong; but soon attacked by insects. Used for agricultural implements, sugar-cane mills, boats, and fuel. Rope made from the bark, which is also medicinal.

Dalbergia latifolia ... ... Blackwood ... ... Biti

Valuable furniture wood, resembling rosewood. Heartwood dark purple and extremely hard, but somewhat brittle. Weight 55 lbs. per cubic foot. Used in Mysore city for articles inlaid with ivory, also elsewhere for cart-wheels, gun-carriages, etc. Shade tree for coffee.

Dalbergia paniculata ... ... Pachari

Wood greyish-white, soft, and perishable; very subject to attacks of insects. Weight about 42 lbs. per cubic foot when seasoned.

Dalbergia sissoo ... ... Sissoo ... ... Biridi

Wood very durable, seasons well, and highly esteemed for all purposes where strength and elasticity are required. Suitable for boats, carriages, etc.

Dillenia pentagyna ... ... Kóltega

Wood nicely marked, but heavy, coarse-grained, and difficult to season. Weight 50 lbs. per cubic foot.

Gmelina arborea ... ... Kúli

Wood cream to pale yellow, close-grained, strong, and does not warp or crack in seasoning. Weight about 30 lbs. per cubic foot. Much esteemed for furniture, carriages, and ornamental work of all kinds.

Grewia tiliæfolia ... ... Tadasalu

Wood light reddish-brown, compact, close-grained, durable, elastic, and easily worked. Valuable where strength and elasticity are required. Used in cart and carriage building, also for masts, oars, and shafts. Weight 35 lbs. per cubic foot. Fruit eaten.

Holoptelea integrifolia ... Entire-leaved elm ... Tapasi

Wood yellow or light brown, no heartwood, soft, open-grained, but strong. Weight 37 lbs. per cubic foot. Used for charcoal; also for country carts, and sometimes for carving.

Lagerstrœmia lanceolata ... ... Nandi

Wood red, smooth, even-grained, elastic, tough, and of great transverse strength. Weight about 45 lbs. per cubic foot. Seasons well, and durable if preserved from moisture. But felled trees soon decay if left exposed in the forest. Used in Coorg for buildings; also used for furniture, carts, and mills.

Mallotus philippinensis ... ... Kunkuma

The powder from the ripe fruit forms the Kamala dye, also known in the south of India as Kapila. Wood only fit for fuel. Weight 48 lbs. per cubic foot.

Michelia champaca ... Champac... ... ... Sampige

A favourite tree of Hindu poetry, well known for the fragrance of its blossoms, which are worn in the hair, etc. Wood soft, seasons and polishes well. Very durable. Weight about 40 lbs. per cubic foot. Used for furniture, carriages, etc.

Phyllanthus emblica ... Emblic myrobalan ... Nelli

Wood mottled-reddish, hard and close-grained, warps and splits in seasoning.

Weight about 50 lbs. per cubic foot. Remarkable for its durability under water, which it also clears of impurities. For this purpose chips of it are thrown into wells or ponds. The bark is used for tanning. The fruit, resembling a gooseberry, is acid and astringent. Much used as an article of food, raw, preserved, or pickled.

Pterocarpus marsupium ... Indian kino ... ... Honne

Wood close-grained, reddish-brown, tough, strong, durable, seasons well, and takes a good polish. Weight 53 lbs. per cubic foot. Makes good furniture, and widely used for carts, window frames, agricultural implements, etc. Bark yields crimson gum, the true kino of commerce.

Schleichera trijuga ... Ceylon oak ... ... Ságade, chendala

Wood very hard, strong, durable, and takes a fine polish. Weight about 70 lbs. per cubic foot. Used for pestles, axles, teeth of harrows, screw rollers of mills. In the Central Provinces lac is produced on this tree, known as *kusuma* lac, the most highly prized of all. Bark and oil from the seeds medicinal ; the latter said to be the original Macassar oil.

Stephegyne parvifolia ... ... Kadaga

Similar to Adina cordifolia, but not used much in the south of India.

Sterculia villosa ... ... Shi-anvige

Wood said to be firmly close-grained, suitable for building and furniture. Bags and ropes made of the fibrous bark.

Tectona grandis ... ... Teak[1] ... ... Tegu, tyága

The chief value of this well-known wood arises from its strength, added to its durability, due probably to the resinous matter in the pores, which resists the action of water. Weight varies in different localities, but approximately 45 lbs. per cubic foot when seasoned. Used in India for numerous purposes—construction, ship-building, sleepers, and furniture ; in Europe for railway carriages, ships, and the backing of armour plates in ironclads.

Terminalia chebula ... Black myrobalan ... Alale, arale

The fruit is most valuable as a tan. The gall-nuts make excellent ink and dyes. Wood hard and fairly durable. Weight about 60 lbs. per cubic foot. Used for furniture, carts, and agricultural implements.

Terminalia paniculata ... ... Huluve, hunal

Timber of middling quality, especially when seasoned in water. Heartwood dark, hard, and fairly durable. Weight 47 lbs. per cubic foot. Used for the same purposes as Matti. Also for fuel, planking, and country carts. In the ground is liable to attacks of white ants.

Terminalia tomentosa ... ... Matti

Wood dark brown, with darker streaks, hard, but not very durable. Weight about 60 lbs. per cubic foot. Good fuel tree ; leaves useful as manure for areca-nut gardens. Yields a gum said to be used as an incense and cosmetic. Bark used for tanning.

Vitex altissima ... ... Naviládi

Valuable wood ; brownish-grey when seasoned. Weight 63 lbs. per cubic foot. Used, when procurable, for building and agricultural work.

[1] The finest teak in Mysore is found in the State forests of Lakvalli, Bisalvadi, Kákankóte, Begur, and Ainur Márigudi. The teak plantations in Mysore cover an area of about 4,000 acres.

Xylia dolabriformis ... Iron wood ... ... Jambe

Wood dark red or brown, very strong, hard, tough, and durable ; not attacked by white ants. Weight 65 lbs. per cubic foot. Used for building and agricultural implements, also for the best charcoal.

The bamboo, scientifically reckoned a giant grass, abounds in the large forests, and is one of the most valuable products. The common species is Bambusa arundinacea, the spiny bamboo (*bidaru*). Dendracalamus strictus is the "male bamboo" (*gandu bidaru*), a solid bamboo used for spear or lance staves, walking-sticks, &c. The largest bamboos, known as *ande bidaru*, are said to be found in the forests of the Mysore District. The periodical dying off of the bamboo after seeding is a well-known phenomenon. The seed, called bamboo rice, generally appears at a time of drought, when the crops have failed, and is eaten by the poorer classes. The uses of the bamboo are innumerable, and there is scarcely a domestic purpose to which it is not applied.

The following trees are also common in these forests :—

Acacia arabica ... ... Bábul ... ... Kari Jáli, gobli

Yields the Indian gum arabic. Wood pale red, turning darker on exposure, close-grained, tough, and very durable when seasoned in water. Weight about 54 lbs. per cubic foot. Much used for naves, spokes and felloes of wheels ; also for rice-pounders, oil and sugar mills, agricultural implements, etc. Tan, dye, fibre, food, and medicine are obtained from the bark or pods.

Acacia leucophlœa... ... ... Bili Jáli, topal

Good fuel tree. Sapwood large ; heartwood reddish-brown, tough, and easily seasoned. Weight about 55 lbs. per cubic foot. Bark used in distilling arrack. The young pods given to sheep supposed to improve the quality of the mutton. Gum, dye, fibre, and medicine are also obtained from this tree.

Ægle marmelos ... ... Bael ... ... Bilpatre

Greatly esteemed for the medicinal properties of root, bark, leaves, and fruit. The pulp of the latter a specific for dysentery and diarrhœa. Its shell or rind is made into snuff-boxes. Wood strongly scented when fresh cut, yellowish-white, hard, and durable. Weight about 50 lbs. per cubic foot. Seldom felled, as it is considered sacred, and the leaves indispensable for the worship of Siva.

Butea frondosa ... ... Muttaga

Whole tracts of country are gay with its gorgeous orange-crimson flowers at the beginning of the hot weather. The leaves are used as plates, and the branches for sacrificial purposes. A red gum called bastard kino obtained from the bark. From the flowers is prepared the red juice squirted about in the Holi festival. The seeds anthelmintic and a common remedy for horses. Wood of little value, but said to be durable under water. Weight 35 lbs. per cubic foot.

Eugenia jambolana ... Black plum, Jamoon ... Nerale

There are two varieties, caryophyllifolia (náyi nerale) and obtusifolia (jambu nerale). The latter, bearing larger fruit, is most abundant in the Malnád. Fruit, which has a very astringent taste, leaves, seeds, and bark medicinal, and the latter used for dyeing and tanning. Wood whitish, hard, tough, and durable in water. Weight 45 lbs. per cubic foot. Used for buildings and agricultural implements.

Feronia elephantum ... Wood-apple ... ... Bela, byála

The acid pulp of the fruit generally eaten, either raw or sometimes in the form of a jelly like black currant. Wood yellowish, close-grained, hard, and durable. Weight 50 lbs. per cubic foot. Used like the foregoing. The bark yields a white transparent gum resembling gum arabic.

Ficus bengalensis ... ... Banyan ... ... Ala

Good shade for coffee. Wood of little value, but durable under water, and therefore used for well frames. Weight about 37 lbs. per cubic foot. The wood of the aerial roots used for tent-poles, cart-yokes, etc. From the milk sap birdlime is made ; it is also applied to sores and bruises. The young leaves are used for plates.

Ficus glomerata ... ... Country fig ... ... Atti

Uses similar to those of the above. Cattle eat the fruit greedily ; it is also eaten by the poor in times of scarcity. The tree imparts moisture to the soil around its roots.

Ficus religiosa ... ... Peepul ... ... Arali, rági, asvattha

Wood of no value. Other uses similar to those of the above. A sacred tree, planted at the entrance of every village along with the margosa, to which it is married with the due ceremonies. Perambulations of the tree supposed to confer male issue and other blessings.

Mangifera indica ... ... Mango ... ... Mávu

Well known for its delicious fruit throughout India. Wood used for minor works of carpentry, but does not stand exposure, and is liable to attacks of insects. Weight about 40 lbs. per cubic foot. Besides being eaten raw, the fruit is made into chatnis, pickles, and preserves. Medicinal properties are attributed to almost every part of the tree. The leaves, strung on a thread, are hung up as a sign of welcome at the lintel of doorways.

Phœnix farinifera ... ... Dwarf date ... ... Sanna íchalu

The leaves are used for thatch, and as fuel for potteries. The farinaceous pith of the stem seems not to be eaten here as in some other parts of India.

Phœnix sylvestris ... ... Wild date, Toddy palm[1] Ichalu.

From the juice is produced the toddy or arrack of the country ; and a small proportion is boiled down for making jaggery and date-sugar. Good mats are made from the leaves.

Tamarindus indica... ... Tamarind ... ... Hunise

Most valued for its fruit, which is largely used in food and for making a cooling drink. The seeds are also roasted and eaten ; and a size made from them is used by Kurubars as a dressing for kamblis or country-made blankets. Fruit, leaves, and seed are also medicinal. Heartwood very hard and durable, but difficult to work. Weight about 60 lbs. per cubic foot. Used for naves of wheels, rice-pounders, mallets, tent-pegs, oil and sugar mills, handles to tools, and so on.

The third or *dry belt* lies to the east of the mixed forest belt, and includes the far greater portion of the Province. The tree vegetation is much inferior to that immediately to the west, the change being in some parts gradual, in others very marked. The latter is especially per-

[1] The groves of this toddy palm, which is a Government monopoly, cover altogether an area of something like 30,000 acres in the Maidán parts of the State. The finest are in the Chitaldroog and Mysore Districts.

ceptible near the Baba Budan hills, which from their elevation arrest much of the rain which would otherwise pass to the east and north-east. The difference between the abundant vegetation of the Jágar valley to the west, and the scanty vegetation to the east, of the Kalhatti hills in the Baba Budans is remarkable.

Many of the trees found in the mixed belt are common to this third tract, but as a rule they are of smaller growth. This is specially noticeable in teak, which is only met with stunted, twisted and small; in some of the *combretaceæ*, and very marked in some of the *leguminosæ*.

Besides the different kinds of *ficus*, the mango, tamarind and jamun, the ippe (*bassia latifolia*) and jack (*artocarpus integrifolia*) grow well. The acacias of the preceding list, the wood-apple, bael-tree and pachari also thrive. The wild date (*phœnix sylvestris*) grows in the western part and the dwarf date (*phœnix farinifera*) in the centre and west. The custard-apple (*anona squamosa*) grows wild rather abundantly in the waste lands of the Sira taluq. Among others the more valuable and common trees are:—

Acacia catechu ... ... Kagli

Catechu (*káchu*) is obtained by boiling down a decoction from chips of the heart-wood. It is not much made in Mysore, and is principally used for mastication and medicine. There are two kinds, dark and pale, of which the latter only is used for chewing. Heartwood dark red, hard, durable, seasons well, and takes a fine polish; not attacked by white ants. Weight about 70 lbs. per cubic foot. Much used for fuel and charcoal. Also for oil and sugar mills, bows, handles to arms, and for agricultural implements.

Alangium lamarckii ... ... Ankóle

Good for fuel and fences. Wood light yellow outside, dark brown in the centre, hard, even-grained, tough, and durable. A beautiful wood when well seasoned. Weight about 52 lbs. per cubic foot. Used for pestles, wooden bells, and other minor purposes. Fruit acid; nearly every part of the tree medicinal.

Anogeissus latifolia ... ... Dindiga

See above (p. 70).

Averrhoa carambola ... ... Kamaraka

Fruit eaten raw, also stewed, curried, and pickled. Wood light red, hard, and close-grained. Weight about 40 lbs. per cubic foot.

Buchanania latifolia ... ... Murkali

Well known for its edible seeds, in some places used as a substitute for almonds. Heartwood seasons well and sufficiently durable for protected work. Weight 36 lbs. per cubic foot. Bark can be used in tanning.

Dalbergia lanceolaria ... ... Hasar ganni

Wood whitish, heavy, weighing 62 lbs. per cubic foot, but not durable. Root, bark, and an oil from the seed, medicinal.

Diospyros tupru ... ... Tupra

Fruit eaten by cowherds. Leaves used for folding native cigarettes. The Mahrattis obtain from the root a coloured paste for caste marks.

Dolichandrone falcata ... ... Udi

A coarse dark fibre obtained from the inner bark. Heartwood hard enough for implements and village buildings.

Gardenia gummifera ... ... Bikke

The medicinal gum-resin, known in trade as *dikamali*, exudes from the extremities of the young shoots and buds; said to have an offensive smell. Wood white, very hard, might serve for box-wood.

Hardwickia binata ... ... Karáchi

One of the most durable timbers in India.[1] Heartwood abundant, close-grained, dark red tinged with purple, soft and easy to work when fresh cut, but afterwards becomes extremely hard. Weight unseasoned 80 lbs. per cubic foot; seasoned wood much lighter. Used for bridges, houses, and agricultural implements. Gum, tan, and fibre are also obtained from it. The young shoots and leaves very extensively used for fodder.

Ixora parviflora ... ... Torch-tree ... ... Gorivi, hennu gorivi

The branches are used as torches by travellers and postal runners. The flowers, pounded in milk, used as a remedy for whooping-cough. Wood, though small, said to be hard and even-grained. Weight about 60 lbs. per cubic foot. Well suited for turning.

Lagerstrœmia parviflora ... ... Chaunangi

Wood light grey, tinged with red, and darker towards the centre; straight-fibred, tough, elastic. Weight about 50 lbs. per cubic foot. Used for agricultural implements, and considered fairly durable. Fibre, tan, dye, and an edible gum obtained from the bark. The tasser silkworm feeds on the tree.

Morinda umbellata ... ... Maddi

From the root is obtained the yellow dye known as *Maddi banna*. Fruit said to be curried and eaten.

Pongamia glabra ... ... Indian beech ... ... Honge

Wood tough and light, weighing about 40 lbs. per cubic foot, white when cut but turning yellow on exposure, coarse-grained, fibrous, and not durable, but said to improve when seasoned in water. Large trunks used for the solid wheels of waddar carts. Oil from the seed is used for lamps and medicinally; also other parts of the tree for the cure of rheumatism and skin diseases. Leafy branches used as green manure for paddy fields. The flowers also used for manure to crops. Honge cake forms a manure to coffee.

Semecarpus anacardium ... Marking nut ... ... Géru

Wood of little value, as it cracks in seasoning. Weight 42 lbs. per cubic foot. The juice from the growing tree said to cause blisters when handled; is therefore ringed some time before felling. The fleshy cup on which the fruit rests is eaten. The juice of the fruit proper is used as medicine, also for varnish, and mixed with lime for marking linen. Oil from the seed is said to be made use of in taming wild elephants, and birdlime prepared from the fruit when green.

Shorea talura ... ... Lac-tree[2] ... ... Jalári

The lac insect is propagated on it, and besides lac, a kind of dammar is obtained from the tree. Wood yellowish, heavy, and durable, capable of taking a good polish, and used for building. Weight 54 lbs. per cubic foot.

[1] Mostly confined to the Tumkur and Chitaldroog Districts, and specially abundant in Bukkapatna, near Sira, and in Molkalmuru taluq.

[2] Most abundant in the Anekal and Closepet taluqs, and in the Nandidroog hills.

Stereospermum chelonoides ... ... Pádri

Wood said to be tremendously hard and almost indestructible under water. Sawyers object to saw it. Used for beams and posts.

Zizyphus jujuba ... ... Indian jujube, bér ... Yelachi

The fruit is better known in northern India. Wood hard, even-grained, tough and durable. Weight 58 lbs. per cubic foot. Bark very astringent and exudes a medicinal gum.

Zizyphus xylopyrus ... ... Challe

The fruit used as a dye for blackening leather. Wood hard and tough. Weight about 60 lbs. per cubic foot. Used for walking-sticks and torches.

Among shrubs and useful bushes are:—

Calotropis gigantea ... Madár, giant swallow-wort Yekka

The plant is filled with a milky sap which hardens on exposure to light, forming a kind of gutta percha, except that it is a conductor of electricity. Medicinal virtues are attributed to every part of the plant. The inner bark yields a bast fibre, which has been suggested as a material for making paper. The silk-cotton of the seed forms the Madár floss of commerce.

Cassia auriculata ... ... Tanner's bark ... ... Tangadi

The bark is one of the best Indian tans,[1] and the root bark is used for tempering iron with steel. Bark and seeds are also medicinal. Twigs used for native tooth-brushes.

Cassia fistula ... ... Indian laburnum ... Kakke

Wood small but durable, weighing 50 lbs. per cubic foot. Hard but brittle and apt to fracture. Used for paddy-grinders, posts, and agricultural implements. From the bark are obtained fibre, tannin, and gum. The fresh pulp of the fruit forms a purgative, and the dried leaves are laxative.

Jatropha curcas ... ... Physic nut ... ... Mara haralu

The young twigs are used as tooth-brushes, the milky juice being considered to strengthen the teeth and gums. The milk sap is a good styptic, and dried in the sun forms a reddish-brown substance like shell-lac. The external application of a decoction of the leaves will excite the secretion of milk. Commonly planted for fences, as cattle will not eat it.

The sandal-tree (*santalum album*), gandha, srigandha—a product principally of Mysore and a State monopoly, yielding the largest share of the forest revenue—is found all over the country, but grows very unequally in different parts. It is never met with in the evergreen belt or in heavy forests of the mixed belt, but is most abundant along the eastern skirts of the last-named tract; in the taluqs bordering on the Kaveri; and in those lying along the chain of hills which runs from Kankanhalli up to Madgiri. In the Chitaldroog and Kolar Districts it is very scarce.

[1] An analysis by Professor Hummel, of the Yorkshire College, Leeds, showed the bark to contain 20·5 per cent. of tannic acid.

The tree attains its greatest bulk and height in taluqs with a moderately heavy rain-fall, but the perfume of wood grown in such localities is not so strong as of that grown in more arid spots, especially where the soil is red and stony. It will thrive among rocks where the soil is good, and trees in such places though small are generally fuller of oil. The bark and sapwood have no smell, but the heartwood and roots are highly scented and rich in oil. The girth of a mature tree varies, according to circumstances, from 18 to 36 or, in exceptional cases, 40 inches. It attains maturity in about twenty-five years. The older the tree, the nearer the heartwood comes to the surface; while the bark becomes deeply wrinkled, is red underneath, and frequently bursts, disclosing in old specimens the absence of all sapwood. In colour and marking, four varieties of the wood are distinguished:—*bili*, white; *kempu*, red; *nága*, cobra; and *navilu*, peacock. The two latter command fancy prices: the names indicate the supposed resemblance of the marks, which are really "caused by the death of adventitious buds."

The heartwood is hard and heavy, weighing about 61 lbs. per cubic foot. The best parts are used for carving boxes, cabinets, desks, walking-sticks, and other useful and ornamental articles. The roots (which are the richest in oil) and the chips go to the still; while the Hindus who can afford it show their wealth and respect for their departed relatives by adding sticks of sandalwood to the funeral pile. The wood, either in powder or rubbed up into a paste, is used by all Brahmans in the pigments for making their caste marks. The oil forms the basis of many scents, and is sometimes used for disguising with its scent articles which, being really carved from common wood, are passed off as if made from the true sandal. The far greater portion of the wood sold yearly in Mysore is taken to Bombay, where it finds its way principally to China, France, and Germany.

Efforts for the propagation of sandal did not meet with much success some years ago, owing to the delicate nature of the young plant, and its exposure to the ravages of hares and deer. More recently the *lantana* shrub, which grows with the rankness of a weed, has been found to be an effectual nurse for the seedlings.

The following timber trees are also found in Mysore:—

Acacia farnesiana ... ... Kastúri jáli, kastúri gobli

The yellow flower heads diffuse a pleasant odour, and are known as Cassia flowers in European perfumery. The plant is said to be obnoxious to snakes and vermin. Wood white, hard, and tough, but too small for general utility. Weight 49 lbs. per cubic foot. A gum like gum arabic is obtained from the stem. Bark and pods medicinal.

Acacia ferruginea ... ... Banni

Yields a good gum. Bark very astringent ; used in distilling arrack. Heartwood small in proportion, reddish-brown, very hard. Weight 70 lbs. per cubic foot. Little used on account of its being considered sacred.

Acacia sundra ... ... Kempu khaira

Little more than a variety of A. catechu. The branches are a darker brown, and the wood heavier and more durable. Weight when seasoned about 80 lbs. per cubic foot. Used for posts in house-building.

Aglaia roxburghiana ... ... Tottila

Fruit buff-coloured, eaten medicinally.

Albizzia amara ... ... Sujjalu

Good locomotive fuel. Heartwood purplish-brown, very hard and durable, of great transverse strength. Weight about 65 lbs. per cubic foot. Used for carts and agricultural implements. Seasoned limbs used for ploughs.

Albizzia stipulata ... ... Hotte bági

Good charcoal tree. Wood used for various purposes, but not very durable. Weight about 40 lbs. per cubic foot. The green leaves a fodder for cattle.

Alstonia scholaris ... ... Jantala

Bark and leaves medicinal : the former known out of India as Dita bark, containing the active principle Ditain, said to equal the best sulphate of quinine. Wood soft and light, of little value. Weight 28 lbs. per cubic foot. Used for schoolboys' writing-boards, whence the name scholaris.

Boswellia serrata, var. glabra ... ... Sámbráni

Wood inferior and only used for fuel or charcoal. The gum-resin is a bastard olibanum, much used as medicine, and as incense in the temples. The branches make good torches.

Careya arborea ... ... Gauju, kavalu

Sapwood abundant, white ; heartwood red, dark in old trees, even-grained, and beautifully mottled. Weight about 50 lbs. per cubic foot. A durable and pretty wood, but not much used in Mysore except for wooden vessels and agricultural implements. Formerly used for the drums of sepoy corps. Bark astringent and yields a very strong fibre, employed as a slow match to ignite gunpowder, and for fuses of native matchlocks. Fruit and flowers medicinal.

Cedrela toona ... ... Indian mahogany, white cedar ... Gandagarige

Wood suitable for furniture and buildings. Said to be durable and not attacked by white ants. Weight about 33 lbs. per cubic foot. Red and yellow dyes obtained from the flowers. Bark medicinal.

Chickrassia tabularis ... Chittagong wood ... Dalmara

Wood beautifully marked, durable, fragrant, easily worked, and takes a good polish. Used especially for furniture and cabinet work. Weight 46 lbs. per cubic foot. Bark astringent. Red and yellow dyes obtained from the flowers.

Cochlospernum gossypium ... ... Arisina búruga

The fine floss from the seeds, also called silk-cotton, is used for stuffing pillows in hospitals in Europe, but locally considered to cause much heat. The gum from the trunk is used for tragacanth in northern India. Wood of no value ; weight about 17 lbs. per cubic foot.

Cordia obliqua ... ... Chadle

Very similar to C. myxa (p. 70) in character. Flowers larger, and plant more hairy.

Cordia rothii ... ... Nárvalli

A coarse fibre from the bark used for ropes. Wood said to be grey, compact, and hard.

Crataeva religiosa ... ... Nírvala

Wood soft and even-grained. Said to be used for drums, combs, and in turnery. Leaves and bark medicinal.

Diospyros embryopteris ... ... ? Kusharta

Fruit rich in tannic acid, but when ripe this disappears and it is eaten. Bark and an oil from the seed medicinal. Wood light brown and not of much value. Uses of the tree not much known in this part of India.

Guazuma tomentosa ... Bastard cedar ... ... Rudrákshi

Leaves and fruit much relished by cattle. Bark medicinal. Timber of old trees said to be durable, though light and apt to split. Weight 32 lbs. per cubic foot.

Hardwickia pinnata ... ..., ... Yenne mara

An oil or oleo-resin obtained from deep incision into the heart of the tree resembles copaiva balsam in composition and properties, though not so transparent, and of a dark red colour. Sapwood large, heartwood brown. Weight 47 lbs. per cubic foot. Used for building in the parts where it grows.

Macaranga roxburghii ... ... Chenta kanni

A medicinal gum, reddish, and with the odour of turpentine, exudes from the young shoots and fruit. Said to be used for taking impressions of coins, etc., and for sizing paper. Wood soft and useless.

Machilus macrantha ... ... Chittu tandri

The properties of this tree are unknown.

Melia azadirachta ... ... Neem, margosa ... ... Bévu

Every part medicinal. Heartwood used for making idols. The wood is not attacked by insects, is hard, durable, and beautifully mottled. Weight about 50 lbs. per cubic foot. Suitable for cabinet work and carpentry. Neem oil, obtained from the seed, is used for killing insects. Leaves antiseptic, and in the native treatment of small-pox are placed under and around the patient at certain stages of the disease. The tree is considered sacred and planted with the peepul at the entrance of villages, the two being married with due ceremonies, the latter representing the female and the former the male.

Melia azedarach ... ... Persian lilac, bead-tree Turuka bévu, huchu bévu

Leaves much relished by sheep and goats. Wood nicely mottled and takes a good polish. Weight about 35 lbs. per cubic foot. Not used. The seeds generally worn as rosaries. The products of the tree resemble those of the neem, but seem to be more used in America than in India.

Melia dubia ... ... Giant neem ... ... Heb bévu

Wood soft and light, weighing about 25 lbs. per cubic foot. Used by planters for buildings. Not easily attacked by white ants. The dried fruit, resembling a date, is a remedy for colic.

Meliosma arnottiana ... ... Massivala

Wood used for poles and agricultural implements: also, apparently, for building purposes.

Moringa pterygosperma ... Horse-radish ... ... Nugge

Also, from the form of the flower, known as the drumstick-tree. The fleshy root is a perfect substitute for horse-radish. The Ben oil of commerce, valued as a lubricant by watchmakers, is obtained from the seed, but is seldom made in India, owing to the fruit being saleable as a vegetable, and the seed therefore not being allowed to mature. Nearly every part considered medicinal.

Ochrocarpus longifolius ... ... Surgi

The dried flower-buds, known in commerce as támra nágakésari, yield a dye for silk. The flowers are used for decoration in temples and on the person. Wood used for local building. Hard, red, close and even-grained. Weight 55 lbs. per cubic foot.

Odina wodier ... ... Udi, simti

Wood of little value and liable to attacks of insects. Weight about 55 lbs. per cubic foot. Bark and gum medicinal. Cattle fond of the green leaves.

Pœciloneuron indicum ... ... Ballagi

Wood very hard and heavy. Not much used except for rice-pounders, agricultural implements, and perhaps walking-sticks.

Polyalthia cerasoides ... ... Sanna hesare

Wood olive-grey, moderately hard, close-grained. Weight 52 lbs. per cubic foot. Much used for carpentry in the Bombay country, but not here.

Prosopis spicigera ... ... ? Perumbe

Good fuel tree, especially for locomotives. Sapwood large and perishable ; heart-wood extremely hard but not durable. Weight 58 lbs. per cubic foot.

Sapindus trifoliatus ... Soap-nut ... ... Kugati, antavala

The nut commonly used for washing clothes. Flannels may be washed with it without shrinking. Root, bark, fruit, and oil from the seed medicinal. Wood hard, yellow, cross-grained, and not very durable. Weight about 64 lbs. per cubic foot. Occasionally used for carts, but more commonly as handles for axes and similar tools, and for combs.

Saraca indica ... ... Asoka

A sacred tree, grown in gardens and near temples for its beautiful flowers, which are a rich orange, changing to dull red. Used also medicinally. The tree is supposed to be a protector of chastity. Sita, the wife of Ráma, when carried off by Rávana, took refuge in a grove of asoka trees.

Sterculia guttata ... ... ? Jén-katalu

Bark ash-coloured and very fibrous, used on the Western Coast for making cordage and rough articles of clothing.

Strychnos potatorum ... Clearing-nut tree ... Chillu

The ripened seeds are used for clearing muddy water. A paste of the same removes the pain from the sting of a centipede. Often felled for fuel.

Thespesia populnea ... Portia, tulip-tree ... Huvvarasi

Formerly much planted as an avenue tree, but does not attain perfection so far inland. When raised from seed the timber is free from knots, straight, even-grained, and tough : suitable for carriages and work requiring lightness and pliability. Bark, fruit, and heartwood medicinal.

Wrightia tinctoria ... ... Beppále, Hále

Wood highly valued by native turners on account of its ivory-white colour. Used for the celebrated Channapatna toys and for wooden idols. The leaves, which turn black when dry, afford a kind of indigo, called in Mysore *pala* indigo.

Of *fruit trees* grown in native gardens, the following are the more important. Most of them are too well known to need description :—

Anacardium occidentale	Cashew-nut	Geru
Anona reticulata	Bullock's heart	Rám phal
,, squamosa	Custard apple	Sita phal
Artocarpus integrifolia	Jack	Halasina mara
Averrhoa carambola	Carambola	Kamarak
Carica papaya	Papay	Perangi
Citrus aurantium	Orange	Kittale
,, decumana	Pumelo	Sakóte
,, medica	Citron	Mádala
,, ,, var. acida	Lime	Nimbe
,, ,, ,, limetta	Sweet lime	Gaja nimbe
,, ,, ,, limonum	Lemon	Herile
Cocos nucifera	Cocoa-nut palm	Tengina mara
Eriobotrya japonica	Loquat	Lakóte
Eugenia jambos	Rose apple	Pan nerale
Ficus carica	Fig	Anjura
Mangifera indica	Mango	Mávina mara
Musa sapientum	Plantain	Bále
Phyllanthus distichus	Star-gooseberry	Kiri nelli
,, emblica	Emblic myrobalan	Nelli
Psidium guyava	Guava	Shépe
Punica granatum	Pomegranate	Dálimbe
Pyrus malus	Apple	Sévu
Vitis vinifera	Vine	Drákshi

The *cashew nut* proper is eaten roasted, and used in native sweetmeats. It yields an oil equal to oil of almonds. From the shell are obtained a black caustic oil, known as cardol, a good preventive of white ants, and anacardic acid, having rubefacient properties. A weak spirit may also be distilled from its juice. Gum obtained from the bark is obnoxious to insect pests. Juice from incisions in the bark forms an indelible marking ink. *Jack fruit* is a favourite article of food among the natives. It is enormous in size and weight, commonly about 20 inches long, and 6 or 8 inches in diameter, weighing 30 to 40 lbs., and grows from the trunk or main limbs with a short stout stalk. The *papay fruit*, something like a small melon, is eaten by all classes, and also pickled. Its juice yields papaine, said to be superior to animal pepsin in its peptonising powers. Meat suspended under the tree becomes tender. The seeds are universally believed to be an effectual emmenagogue and abortive.

The best *oranges* are imported, and are the produce of Sátghur near Vellore, or of the Sherveroy Hills, &c. The loose-jacket orange is obtained from Coorg. Of *cocoa-nuts* a rare variety is produced at Honnavalli in Túmkúr District, which, on account of the delicious sweet flavour of its milk, is called Ganga-páni, or water of the Ganges.

The dried kernel of cocoa-nuts, called *kobari*, is a great article of export from the central parts of Mysore.[1]

Of *mangoes* there are many varieties, bearing the following names:—*gól káyi* (the most common, roundish), *bádámi* (almond-shaped), *rasapuri* (reddish pulp), *jírige* (has the scent of cummin seed), *pích káyi* (small kind), *kari káyi* (black fibres in the skin), *giṇi múti* or *giṇi mávu* (shape of a parrot's beak), *gunge mávu* (generally has a bee in the stone), *sakkare* or *shi mávu* (sweet kind), *chit káyi* (small kind), *huḷi mávu* (used only for pickle). The cultivated kinds, which are propagated by inarching or grafting by approach, have the following names:—amíni, bádámi, Chittúr, dil-pasand, Malgova, nílam, Peter-pasand, puttu, rasapuri, Salem, sandarsha. The formation of graft mango plantations has greatly extended during recent years.

Plantains are very plentiful and a favourite article of diet. The most esteemed are *rasa báḷe* and *rája rasa báḷe* (with a yellow custard-like pulp), *puṭṭa báḷe* or *puṭṭa sugandha báḷe* (a small sweet plantain, the Guindy plantain), *madhuranga*, *gujja*, *chína*, and *gúlúr báḷe* (all butter plantains), *jénu báḷe* (honey plantain), *rája báḷe* (royal plantain), *chandra báḷe* (red plantain), *sakaláti báḷe* (red and cottony), *pachcha báḷe* (green when ripe), *hávu báḷe* (long and slender), *yelakki báḷe*, *arisina báḷe*, *áne báḷe* (a very large kind), *kalyáni báḷe* (very large and coarse), *búdi báḷe* (greyish, used only for cooking), *káḍu báḷe* (the wild plantain).

Guavas, of which there are three or four varieties, white and red, are very plentiful. The grafted kinds are superior. A delicious jelly, closely resembling red currant, is made from the common kind by Europeans.

The *grapes*, though sweet, are small, owing probably to want of attention in thinning out the clusters. Both green and purple varieties are grown. Those from the neighbourhood of Seringapatam are the most highly esteemed. Of imported varieties, fourteen are named in Mr. Cameron's catalogue as in local cultivation. Efforts are being made to extend viticulture. *Apples* are cultivated principally in Bangalore for the European market, and grow to great perfection. The different varieties are distinguished by numbers indicating the order in which they were introduced.

The following are names of *vegetables* of which the leaves are used by natives in curries and stews. Some of these vegetables are cultivated, while others grow wild. The leaves only are used in curries or boiled with chillies to be eaten along with rice.

Æschynomene grandiflora	Agase soppu
Achyranthes lanata	Biḷi súli ,,
,, muricata	Akvi goraji
,, triandra	Ponnaganti soppu

[1] Further particulars regarding cocoa-nuts will be found under "Cultivation."

Amarantus campestris		Kírakasále soppu
,, candidus		Biḷi ,,
,, gangeticus		Danṭu ,,
,, inamœnus		Harive ,,
,, mangostanus		Chilki soppu
,, oleraceus	Country greens	Soppu
,, viridis		Daggali soppu
Arum esculentum		Kesave ,,
Basella rubra and alba and var.	Indian spinach	Dodda basali
Boerhaavia diffusa	Hogweed	Bilavarga
Brassica alba	White mustard	Biḷi sásive soppu
Canthium parviflorum		Káre gida
Cassia tora		Gundu tagasi
Chenopodium viride	Goosefoot	Sakótti soppu
Cleome pentaphylla		Narobeda
Convolvulus esculentus		Tutti soppu
Corchorus olitorius	Jew's mallow	Kotṇa goraji
Coriandrum sativum	Coriander	Cottambari soppu
Hibiscus cannabinus	Deccan hemp	Pundi, pundríka
,, sabdariffa	Rozelle	Kempu ,,
Hyperanthera moringa	Horse-radish	Nugge soppu
Leucas aspera		Tumbe ,,
Marsilea quadrifolia		Chiṭigina ,,
Mollugo stricta		Parpátaka soppu
Portulaca oleracea		Doḍḍa gora
,, quadrifida	Indian purslane	Huli bachcheli
Trianthema decandra		Galija
,, monogyna		Nuchchu govi
Trigonella fœnum græcum	Fenugreek	Mente soppu

The *fruits* and *seeds* of the following trees and plants are also used in curries. Fruits introduced into curries are generally unripe; when ripe they are unfit for the purpose.

Æschynomene grandiflora		Agase káyi
Artocarpus integrifolia	Jack fruit	Halsina ,,
Bryonia umbellata		Tonḍe ,,
Capparis zeylanica		Totli ,,
Cucurbita alba	Pumpkin	Doḍḍa kumbala káyi
,, lagenaria	Bottle gourd	Doḍḍa sóre káyi
Cucumis acutangulus		Híre káyi
,, pentandra		Tuppa híre káyi
,, species		Huli saute ,,
,, utillatissimus	Country cucumber	Saute káyi
Dolichos lablab		Man avare
,, ,, var.		Biḷi man avare
,, minimus		Ghaṭṭ avare
,, spicatus	Cow gram	Doḍḍa man avare
,, suratu		Buḍame káyi
Hibiscus esculentus		Benḍe káyi
Hyperanthera moringa	Moringa fruit	Nugge ,,
Momordica charantia		Hágal ,,
,, dioiea		Giḍ hágalu

Momordica operculata		
Musa sapientum	Plantain	Bále hannu
Solanum melongena	Brinjal	Badane káyi
,, trilobatum	... ...	Kákamunchi káyi
,, varietas	... ...	Molalu badane
Trichosanthes cucumerina ...	... ...	Kiri podla káyi
,, nervifolia	... ...	Podla káyi
,, palmata	... ...	Avagude hannu
Trigonella tetrapetala	... ...	Góri káyi

A few names may be added of plants the *roots* of which are used in curries. Of these the country or sweet potato grows here to great perfection.

Arum campanulatus	Arum	Churna gaḍḍe
,, colocasia	... ...	Kesave ,,
Convolvulus batatas	Sweet potato	Geṇasu ,,
Daucus carota	Carrot	Gájina ,,
Dioscorea sativa	Yam	Heg-genasu gaḍḍe
Raphanus sativus	Radish	Mullangi ,,

The Catalogue, which here follows, of plants in the Lal Bagh or Government Botanical Gardens at Bangalore, compiled by Mr. J. Cameron, F.L.S., the Superintendent, will serve to show the capabilities of the climate and the attention bestowed on horticulture :—

Dicotyledons.

Ranunculaceæ.

Clematis, 5[1] ... Virgin's bower
Naravelia, 1
Thalictrum, 1 ... Meadow rue
Delphinium, 2 ... Larkspur
Nigella, 2 ... ... Fennel flower
Aquilegia, 2 ... Columbine

Several species of Clematis grow wild in Mysore.

Dilleniaceæ.

Delima, 1
Dillenia, 3
Candollea, 1

Several Dillenia are elegant trees for scenic planting.

Magnoliaceæ.

Magnolia, 3
Michelia, 2 Champaka Sampige

The fragrant Champaka is a favourite flower of Indian poetry.

Anonaceæ.

Uvaria, 2
Artabotrys, 1
Polyalthia, 2
Anona, 5 Custard apple Síta phal
Miliusa, 1
Saccopetalum, 1

The custard apple and bullock's heart (Ráma phal) are abundant in many parts.

Menispermaceæ.

Tinospora, 1
Anamista, 1
Cocculus, 1

Berberideæ.

Berberis, 1
Nandina, 1

Himalayan plants almost impossible to cultivate here.

Nymphæaceæ.

Nymphœa, 3 Waterlily... Távare
Nelumbium, 1 Lotus ... Kamala
Victoria, 1 ... Amazon lily

Lotus and waterlilies are common in tanks or sacred ponds all over the country.

Papaveraceæ.

Papaver, 5 ... Poppy ... Gasagase
Argemone, 1

The cultivation of poppy for opium is prohibited.

[1] These figures show the number of species under each genus.

Fumariaceæ.

Fumaria, 1 ... ... Fumitory

Cruciferæ.

Matthiola, 2 ... Stock
Cheiranthus, 1 Wallflower
Nasturtium, 3... Watercress
Cardamine, 1 ... Cuckoo flower
Malcolmia, 1 ... Virginian stock
Coronopus, 1
Erysimum, 2
Brassica, 7 ... Turnip
Cabbage Mudde kósu
Mustard Sásiva
Capsella, 1 ... Shepherd's purse
Lepidium, 1 ... Garden cress
Iberis, 1 ... Candytuft
Raphanus, 1 ... Radish Mullangi

The European vegetables of this order are fully established in the market gardens.

Capparideæ.

Cleome, 6
Gynandropsis, 1
Cratœva, 1 ... ... Caper-tree
Cadaba, 1
Capparis, 6

Resedaceæ.

Reseda, 1 ... ... Mignonette

Violaceæ.

Viola, 2 ... ... Violet, Pansy
Ionidium, 1

Bixineæ.

Cochlospermum, 1
Bixa, 2 ... Annatto ... Rangumále
Flacourtia, 3
Gynocardia, 1
Hydnocarpus, 1

Pittosporeæ.

Pittosporum, 4
Billardiera, 1
Bursaria, 1
Hymenosporum, 1
Sollya, 1

Polygaleæ.

Polygala, 3

Caryophylleæ.

Dianthus, 5... ... Pink
Saponaria, 1 ... Soapwort
Silene, 4 ... ... Catchfly
Lychnis, 2 ... ... Campion
Cerastium, 2 ... Chickweed
Stellaria, 1
Polycarpœa, 2

Various strains of pinks do well at Bangalore

Portulaceæ.

Portulaca, 4
Calandrinia, 1

Tamariscineæ.

Tamarix, 1

Hypericineæ.

Hypericum mysorense St. John's wort
Common at Nandidroog

Guttiferæ.

Garcinia, 4
Ochrocarpus, 1
Calophyllum, 2 Pinnay oil tree Surahonne
Poon tree Kúve, Bobbi
Mesua, 1... ... ... Nága sampige
Pœciloneuron, 1... ... Ballagi
Clusia, 1

From the Ballagi tree walking-sticks are made.

Ternstrœmiaceæ.

Camellia, 2... ... Tea shrub

Dipterocarpeæ.

Shorea, 2 ... Lac tree ... Jálári
Sal tree
Hopea, 2
Vateria, 1 ... Indian Copal tree Dhúpada mara

Malvaceæ.

Althæa, 2 ... Hollyhock Dodda bindige
Lavatera, 1
Malva, 3 ... . Sanna bindige
Malvastrum, 2
Sida, 7
Abutilon, 6 ... ... Tutti
Malachra, 1
Urena, 2
Pavonia, 2
Decaschistia, 2
Hibiscus, 23... Shoe-flower Dásála
Rozelle ... Kempu pundrike
Paritium, 1
Thespesia, 2

Gossypium, 5	Cotton	...	Arale
Kydia, 1			
Adansonia, 1	Baobab		
Bombax, 1 ...	...	...	Kempu búruga
Eriodendron, 1	...	...	Biḷi búruga
Lagunaria, 1			
Durio, 1	... Durian		

Under *Abutilon* 12 garden varieties are enumerated. Under *Gossypium* the cottons known as Hinginghaut, Dacca, Berar, Upland Georgian, and China are varieties of *herbaceum*; those known as Barbadoes, Bourbon, New Orleans, and Sea-Island are from *barbadense*.

Sterculiaceæ.

Sterculia, 8			
Cola, 1			
Heritiera, 2			
Kleinhovia, 1			
Helicteres, 2...	Indian Screw-tree	...	Yedamuri
Pterospermum, 1			
Eriolæna, 1			
Pentapetes, 1			
Melhania, 2			
Dombeya, 1			
Melochia, 1			
Waltheria, 1			
Abroma, 1			
Guazuma, 1 ...	Bastard cedar	...	Rudrákshi
Theobroma, 1	Chocolate-tree		

Tiliaceæ.

Berrya, 1			
Grewia, 9 ...	...	...	Bútále, Tadasalu
Triumfetta, 3			
Corchorus, 4	Jute plant		
Elæocarpus, 2			

The genus Grewia is well represented in the reserved jungles of Mysore, where some of the climbing species form dense thickets for the preservation of wild animals. The jute plant is found only rarely in local cultivation.

Lineæ.

Linum, 2	... Flax plant		
Kienwardtia, 1			

Erythroxylon, 2	Bastard sandal	Devadáru

Cocaine is the active principle of the leaf of *E. coca*.

Malpighiaceæ.

Malpighia, 3		
Hiptage, 2		
Aspidopterys, 1		
Banisteria, 1		
Stigmatophyllum, 1		

Zygophylleæ.

Tribulus, 2 ...	...		Sanna neggilu
Guaiacum, 1			
Melianthus, 1			

The herb *sanna neggilu* is well known for its medicinal properties. The introduced tree, *G. officinale*, yields the valuable wood known as *lignum vitæ*.

Geraniaceæ.

Pelargonium, 3	Garden geranium		
Oxalis, 4	... Wood sorrel		
Biophytum, 2			
Averrhoa, 2 ...	...	...	Komarak, Bilimbi
Impatiens, 7			
Tropœolum, 3			
Hydrocera, 1			

Rutaceæ.

Ruta, 1	... Common rue	...	Hávu-nanjina gida
Zanthoxylum, 2			
Toddalia, 1 ...	...	...	Kádu menasu
Glycosmis, 1			
Murraya, 2	... China box		Angáraka
	Curry-leaf tree		Kari bevu
Clausena, 2			
Triphasia, 1			
Limonia, 2			
Atalantia, 2			
Citrus, 6	... Citron	...	Mádavála
	Lemon	...	Herale
	Lime	...	Nimbe
	Orange	...	Kittale
	Pummelo	...	Sakotti
Feronia, 1	... Wood-apple		Bélada mara
Ægle, 1	... Bael-tree	...	Bilvapatre
Calodendrum, 1			

The fœtid herb *R. graveolens* is said to be obnoxious to snakes, and is often cultivated near dwellings on that account.

Simarubeæ.

Ailantus, 1
Balanites, 1 ... ... Ingalíka
Quassia, 1 ... Quassia shrub

Ochnaceæ.

Ochna, 2

Burseraceæ.

Boswellia, 2 ... ... Sámbráni
Garuga, 1
Balsamodendron, 2
Protium, 1
Bursera, 1
Filicium, 1

Meliaceæ.

Naregamia, 1
Melia, 3 ... Neem-tree... Bevu
Cipadessa, 1
Walsura, 1
Soymida, 1 ... ... Svámi
Chickrassia, 1 Chittagong wood
Cedrela, 1 ... White cedar Noge
Chleroxylon, 1 Satin wood Huragalu
Swietenia, 2 ... Mahogany

Olacineæ.

Ximenia, 1
Olax, 1
Opilia, 1

Ilicineæ.

Ilex, 2

Europe holly does not succeed at Bangalore, but the Chinese species is not a bad substitute.

Celastrineæ.

Euonymus, 3
Celastrus, 1 ... ... Kangondi
Gymnosporia, 2 ... ... Tandrasi
Elæodendron, 1 ... ... Mukkarive

Rhamneæ.

Ventilago, 1 ... ... Popli
Zizyphus, 4 ... Bhere fruit Yelachi
Rhamnus, 2
Scutia, 1 ... ... Kurudi
Colubrina, 1

The root bark of Popli affords a good orange dye.

Ampelideæ.

Vitis, 12 ... Grape vine Drákshigida
Leea, 1
Ampelopsis, 1 Virginia creeper

Of the varieties of grape in local cultivation 16 are named.

Sapindaceæ.

Cardiospermum, 1
Allophylus, 1
Sapindus ... Soap-nut-tree ... Kúgati
Nephelium, 3 Litchi
Dodonæa, 1
Melianthus, 1
Paullinia, 1

Anacardiaceæ.

Rhus mysorensis Native sumach
Pistacia, 1
Mangifera, 2... Mango ... Mávu
Anacardium, 1 Cashew-nut Turuka Geru mara
Buchanania, 1
Odina, 1
Semecarpus, 1 Marking-nut Geru mara
Spondias, 3 ... Hog-plum ... Amate
Schinus, 1 ... Bastard pepper

Moringeæ.

Moringa, 1 ... Horse-radish-tree Nugge

Leguminosæ.

(Papilionaceæ)

Genista, 1 ... Spanish broom
Rothia, 1
Heylandia, 1
Crotalaria, 19 ... ... Sanabu
Trifolium, 2 ... Clover
Trigonella, 1... Fenugreek Mentya
Medicago, 4 ... Lucerne
Cyamopsis, 1
Lupinus, 5
Indigofera, 9 Indigo ... Nili gida
Mundulea, 1
Tephrosia, 6
Sesbania, 5 ... ... Jinangi
Hedysarum, 1
Zornia, 1
Stylosanthes, 1
Æschynomene, 2
Ormocarpum, 1
Eleiotis, 1
Pseudarthria, 1
Uraria, 1
Lowria, 1
Alysicarpus, 2
Desmodium, 8 Sensitive plant

Abrus, 1	Wild liquorice	Guraganji
Cicer, 1	Bengal gram	Kadale
Vicia, 2	Bean	
Ervum, 1	Lentil	
Arachis, 1	Ground-nut	Nela kadale
Lathyrus, 1	Sweet pea	
Pisum, 2	Garden pea	
Glycine, 2	...	Kád-avare
Teramnus, 1		
Mucuna, 4	Cowitch	
Erythrina, 8	Indian coral	Varjipe
Galactia, 1		
Butea, 2	Pulas kino	Muttuga
Canavalia, 3	Sword bean	
Phaseolus, 8	Kidney bean	Hurali kayi
	Green gram	Hesaru
Vigna, 1	...	Alasandi
Pachyrhizus, 1		
Clitoria, 4		
Dolichos, 3	Cow gram	Avare
	Horse gram	Hurali
Psophocarpus, 1		
Atylosia, 3		
Cajanus, 1	Dholl	Togari
Cylista, 1		
Rhynchosia, 6		
Flemingia, 2		
Dalbergia, 8	Rosewood	Biridi
Pterocarpus, 2	Kino	Honne
Pongamia, 1	Indian beech	Honge
Derris, 2		
Sophora, 2		
Virgilia, 1		
Goodia, 1		
Templetonia, 1		
Swainsonia, 1		
Myrospermum, 2	Myroxylon	
Viminaria, 1		
Clianthus, 2		
Robinia, 1		
Cartanospermum, 1		
Brownea, 2		
(Cæsalpiniæ)		
Cæsalpinia, 10	Sappanwood	
	Mysore thorn	Kurudu gajjige
Peltophorum, 1		
Mezoneurum, 1		
Pterolobium, 2		
Poinciana, 2	Gold-mohur tree	
Parkinsonia, 1	Jerusalem thorn	
Wagatea, 1		
Gleditschia, 1	Honey locust	
Cassia, 17	Indian laburnum	Kakke
	Tanner's cassia	Tangadi
Hardwickia, 1	...	Karachi
Saraca, 1	Asoka	Asoka
Amherstia, 1		
Tamarindus, 2	Tamarind	Hunise
Hymenœa, 1	Locust-tree	
Humboldtia, 1		
Bauhinia, 13	Camel's foot	Kanchi-vála
Hæmatoxylon, 1	Logwood	
Colvillea, 1		
Ceratonia, 1		
Louchocarpus, 1		
(Mimoseæ)		
Neptunia, 1		
Adenanthera, 1	Redwood[1]	Manjatti
Prosopis, 2		
Dichrostachys, 1		
Parkia, 1		
Desmanthus, 1		
Leucæna, 1		
Mimosa, 2		
Acrocarpus, 1	Shingle-tree	Haulige
Acacia, 18	Babool	Jáli
		Mugali
		Kaggali
	Soap-nut	Sige gida
Albizzia, 5	...	Báge
		Sujjalu
Pithecolobium, 3	Rain-tree	
	Korakapulli	Sime hunise

The shingle-tree is considered by many planters to be one of the best trees for coffee shade. The Australian wattles have not succeeded well at Bangalore, but the indigenous *Jális* are common everywhere.

[1] The scarlet seeds, each supposed to equal 4 grains exactly, used by goldsmiths and others as weights. Also worn as necklaces. The paste from the heartwood applied by Brahmans to the forehead after bathing.

Rosaceæ.

Prunus, 4 ... Peach, Plum
Spiræa, 1
Rubus, 3 ... Raspberry
Fragaria, 1 ... Strawberry
Poterium, 1
Rosa, 17 ... Rose ... Gulábi
Eriobotrya, 1 Loquat ... Lakkoti
Pyrus, 2 ... Apple, Pear Sévu

Of roses 258 varieties are named as cultivated in Bangalore.

Saxifragaceæ.

Saxifraga, 1
Vahlia, 1
Hydrangea, 1

Crassulaceæ.

Tillæa, 1
Bryophyllum, 1
Kalanchoe, 4
Cotyledon, 4
Sedum, 1
Echeveria, 1

Droseraceæ.

Drosera, 1 ... ... Indian Sundew

Halorageæ.

Myriophyllum, 1

Combretaceæ.

Terminalia, 9 Myrobalan Táre, Arale káyi
Anogeissus, 1 ... ... Dindiga
Combretum, 5
Poivrea, 1
Quisqualis, 1 Rangoon creeper

Myrtaceæ.

Melaleuca, 2
Tristania, 2
Callistemon, 2
Eucalyptus, 15 Gum tree
Myrtus, 1 ... Myrtle
Psidium, 4 ... Guava ... Chépe
Eugenia, 7 ... Rose-apple Pannerale
Jamoon ... Náyi nerale
Barringtonia, 1
Careya, 1
Couroupita, 1

Melastomaceæ.

Osbeckia, 2
Melastoma, 1 Indian rhododendron
Sonerila, 1
Heterotrichum, 1
Memecylon, 3

Lythraceæ.

Ammannia, 5
Lawsonia, 1 ... Henna ... Goranti
Lagerstrœmia, 4 ... ... Nandi
Punica, 3 ... Pomegranate Dálimbe
Lafœnsia, 1
Heimia, 1
Cuphea, 2

Onagraceæ.

Jussiæa, 2
Ludwigia, 1
Clarkia, 2
Godetta, 4
Œnothera, 2
Fuchsia, 3
Napa, 1 ... Water chestnut

Passifloreæ.

Passiflora, 12... Passion-flower
Tacsonia, 3
Modecca, 1
Carica, 1 ... Papay ... Parangi

Cucurbitaceæ.

Trichosanthes, 3 Snake gourd Padavalu
Lagenaria, 1 ... Bottle gourd Sore
Luffa, 4
Benincassa, 1
Momordica, 3
Cucumis, 3 ... Melon ... Kekkarike
Cucumber ... Savute
Citrullus, 2 ... Colocynth
Water melon Karbuj
Cephalandra, 1
Cucurbita, 3 ... Gourd ... Kumbala
Bryonia, 1
Mukia, 1
Zehneria, 1
Rhynucarpa, 1
Zanonia, 1

Begoniaceæ.

Begonia, 27

Cacteæ.

Opuntia, 5 ... Prickly pear Pápás kattáli
Cochineal plant
Melocactus, 2
Cereus, 9 ... Night-flowering cactus
Echinocactus, 1
Epiphyllum, 2
Pereskia, 1

Ficoideæ.

Trianthema, 3
Orygia, 1
Mollugo, 4
Tetragonia, 1
Mesembryanthemum, 1 Ice plant

Umbelliferæ.

Hydrocotyle, 2 Indian pennywort
Apium, 2 ... Celery, parsley
Carum, 4 ... Caraway
Bishop's weed ... Omu
Pimpinella, 2
Fœniculum, 1
Polyzygus, 1
Anthriscus, 1 Chervil
Pencedanum, 1 Dill
Coriandrum, 1 Coriander ... Kottumbari
Cuminum, 1 ... Cummin seed Jirige
Daucus, 1 ... Carrot ... Gájina gadde
Partinaca, 1 ... Parsnip
Arracacia, 1
Heracleum, 1

Araliaceæ.

Aralia, 8 ... Rice-paper plant
Panax, 9
Heptapleurum, 1
Brassæia, 2
Hedera, 1 ... Ivy

Many varieties of Panax are cultivated in gardens for their foliage.

Cornaceæ.

Alangium, 1 ... ... Ankole
Cornus, 1
Benthamia, 1

Caprifoliaceæ.

Lonicera, 2 ... Woodbine

Rubiaceæ.

Sarcocephalus, 1
Anthocephalus, 1
Adina, 1 ... ... Báchanige
Stephegyne, 1 ... ... Kadaga
Nauclea, 1 ... ... Yettaka
Wendlandia, 2
Hedyotis, 1
Oldenlandia, 3
Mussænda, 1
Webera, 1 ... ... Pápati
Randia, 2 ... ... Mangáre
Gardenia, 4
Knoxia, 1
Canthium, 2 ... ... Káre
Vangueria, 1
Ixora, 7 ... Torch-tree ... Gorivi
Pavetta, 1
Coffea, 2 ... Coffee ... Kápi
Morinda, 2
Psychotria, 1
Spermacoce, 1
Rubia, 2 ... Madder
Pentas, 1
Hamelia, 1
Cinchona, 4
Rondeletia, 1
Manettia, 1
Catesbæa, 1
Hoffmania, 1

Dipsaceæ.

Dipsacus, 1 ... Fuller's teazel
Scabiosa, 4

Compositæ.

Centratherum, 1
Vernonia, 5 ... Speedwell
Elephantopus, 1
Adenostemma, 1
Ageratum, 2
Solidago, 1
Eupatorium, 2
Dichrocephala, 1
Grangea, 1
Brachycome, 2
Aster, 3
Callistephus, 1
Erigeron, 1
Conyza, 1
Blumea, 6
Laggera, 1
Pluchea, 2
Sphæranthus, 3 ... Múdugattina soppu
Bodukadale soppu

Often mixed with stored grain to preserve the latter from the attacks of insects.

Filago, 1
Anaphelis, 1
Gnaphalium, 2
Helichrysum, 2 Everlasting
Vicoa, 1
Lagascea, 1

Xanthium, 1
Siegesbeckia, 1
Eclipta, 1 ... ... Garugalu soppu
Blainvillea, 1
Wadelia, 1
Spilanthus, 3... ... ... Muguli
Guizotia, 1 ... Foolish oil-plant ... Huchch-ellu
Bidens, 1 ... Bur marigold
Achillea, 1 ... Milfoil
Chrysanthemum, 4 ... ... Sevantige
Cotula, 1
Artemisia, 3 ... Wormwood
Gynura, 1
Emilia, 1
Notonia, 1
Senecio, 4 ... ... Kadu gobli
Calendula, 1... Marigold
Echinops, 1
Tricholepis, 2
Centaurea, 4... Cornflower
Carthamus, 1 Safflower ... Kusumba
Dicoma, 1 ... ... Sanni
Cichorium, 2 Succory, Endive
Taraxacum, 1 Dandelion
Lactuca, 2 ... Lettuce
Sonchus, 1 ... Sow thistle
Farfugium, 3
Flauria, 1
Zinnia, 4
Argyranthemum, 1
Cosmos, 1
Cacalia, 1
Gaillardia, 3
Gazania, 1 ... Treasure flower
Helenium, 1
Tagetes, 3 ... African and French marigold
Calliopsis, 4
Bellis, 2 ... Daisy
Cineraria, 1
Sanvitalia, 1
Pyrethrum, 3 Feverfew
Cynara, 1 ... Globe artichoke
Dahlia, 1
Helianthus, 4 Sunflower ... Súrya kánti
Jerusalem artichoke
Polymnia, 1
Vittadenia, 1 Australian daisy
Verbesina, 1

Campanulaceæ.

Pratia, 1
Lobelia, 11
Cephalostigma, 2
Wahlenbergia, 1
Sphenoclea, 1
Campanula, 5 ... Harebell
Trachelium, 1 ... Throatwort

Plumbaginaceæ.

Plumbago, 3... Leadwort ... Chitra-múla

Primulaceæ.

Primula, 1 ... ... Primrose
Anagallis, 1 ... Pimpernel
Cyclamen, 1 ... Sow bread

Myrsineæ.

Mæsa, 1
Embelia, 1
Ardisia, 4
Jacquinia, 3

Sapotaceæ.

Chrysophyllum, 1 Star-apple
Sideroxylon, 1 ... Iron wood
Bassia, 2 ... Mahwa ... Ippe
Mimusops, 2 ... ... Pagadi
Achras, 1 ... Sapod illa

Ebenaceæ.

Diospyros, 6... Ebony ... Bale

Oleaceæ.

Jasminum, 15 Jasmine ... Mallige
Nycthanthes, 1 ... ... Párijáta
Olea, 2 ... Olive
Ligustrum, 1... Indian privet
Myxopyrum, 1
Noronhia, 1

Salvadoraceæ.

Azima, 1 ... ... Biḷi uppi

Apocynaceæ.

Carissa, 4 ... ... Korinda
Ranwolfia, 1
Cerbera, 1
Kopsia, 1
Vinca, 3 ... Periwinkle Kási ganagalu
Plumiera, 3 ... Pagoda-tree Deva ganagalu
Alstonia, 2 ... ... Jantala
Holarrhena, 1
Tabernæmontana, 3... ... Nandi batlu

Vallaris, 1 ... ... Bugadi
Wrightia, 2 ... Ivory wood Beppále
Nerium, 3 ... Oleander ... Ganagalu
Beaumontia, 2
Thevetia, 1 ... Exile tree
Allamanda, 4
Ichnocarpus, 1
Roupellia, 1
Dipladenia, 1
Echites, 2
Landolphia, 3
Rhyncospermum, 1
Adenum, 1

Asclepiadaceæ.

Hemidesmus, 1 Bastard sarsaparilla Sugandhi
Cryptolepis, 2
Cryptostegia, 1
Secamone, 1... ... ... Síranige
Oxystelma, 1
Calotropis, 3... Mudar ... Yekke
Asclepias, 1 ... Swallowwort
Dæmia, 1 ... ... Juttuve
Cynanchum, 2.
Sarcostemma, 1 ... ... Hambu kalli
Gymnema, 1
Pergularia, 1
Stephanotis, 1
Tylophora, 4
Hoya, 5 ... Waxflower
Leptadenia, 1
Brachystelma, 1
Ceropegia, 5
Gomphocarpus, 1
Caralluma, 2
Boucerosia, 2

Loganiaceæ.

Mitrasacme, 1
Buddleia, 1
Fagræa, 1
Strychnos, 2... Nux vomica Nanjina koradu

Gentianaceæ.

Exacum, 2
Hoppea, 2
Erythræa, 1
Canscora, 2
Limnanthemum, 2

Polemoniaceæ.

Phlox, 3
Cobæa, 1

Hydrophyllaceæ.

Wigandia, 1
Hydrolea, 1
Nemophila, 1

Boragineæ.

Cordia, 4 .. .. Tapasi
Ehretia, 5
Coldenia, 1
Heliotropium, 3 Heliotrope
Trichodesma, 3
Anchusa, 1 ... Alkanet
Myosotis, 2 ... Forget-me-not
Symphytum, 1 Prickly comfrey
Borago, 1 ... Borage
Cynoglossum, 1

Convolvulaceæ.

Erycibe, 1
Rivea, 2
Argyreia, 6 ... Elephant creeper ... Samudra-pála balli
Lettsomia, 2
Ipomæa, 23 ... Moonflower creeper Morning glory
Hewittia, 1
Convolvulus, 5 Scammony
Exogonium, 1 Jalap
Jacquemontia, 1
Evolvulus, 1
Porana, 1
Cuscuta, 1

Solanaceæ.

Solanum, 14... Nightshade Káchi
Brinjal, egg-plant Badane
Potato ... Urala gadde
Cyphomandra, 1
Lycopersicum, 1 Tomato
Physalis, 2 ... Cape gooseberry
Capsicum, 5 ... Chilli ... Menasu
Withania, 1
Nicandra, 1
Datura, 5 ... Thorn-apple Ummatti
Brugmansia, 1 Trumpet flower
Hyoscyamus, 1 Henbane
Petunia, 3
Habrothamnus, 1
Nicotiana ... Tobacco ... Hoge soppu

Scrophularineæ.

Verbascum, 1 ... Mullein
Celsia, 1.
Linaria, 2 ... ... Toad-flax

Antirrhinum, 1 ... Snap-dragon
Mimulus, 3... ... Monkey flower
Limnophyla, 2
Herpestis, 1
Torenia, 2 ... ... Sispara creeper
Vandellia, 4
Ilysanthes, 2
Veronica, 1... ... Speedwell
Striga, 1
Rhamphicarpa, 1
Sopubia, 2
Maurandia, 3
Penstemon, 5
Angelonia, 2
Browallia, 2
Lophospermum, 1
Collinsia, 2
Calceolaria, 1 ... Slipperwort
Paulownia, 1
Russellia, 2
Brunfelsia, 1
Franciscea, 2
Sanchezia, 2

Calceolaria is not successfully cultivated at Bangalore.

Orobanchaceæ.

Æginetia, 2
Orobanche, 2

Lentibulariaceæ.

Utricularia, 2

Gesneraceæ.

Æschynanthus, 2
Klugia, 1
Gesnera, 6
Achimenes, 3
Gloxinia, 4
Streptocarpus, 1

Bignoniaceæ.

Millingtonia, 1 Indian cork-tree Biratu
Oroxylum, 1
Bignonia, 3 ... Trumpet-flower
Tecoma, 7
Dolichandrone, 1
Spathodea, 1
Heterophragma, 1
Stereospermum, 4 ... ... Pádar
Amphilophium, 1
Catalpa, 1
Crescentia, 1 Calabash-tree
Kigelia, 1

The *spathodea*, when in flower, is one of the handsomest trees in our parks and gardens.

Pedaliaceæ.

Pedalium, 1
Sesamum, 2 ... Gingelli ... Olle yellu
Martynia, 2

Acanthaceæ.

Thunbergia, 11
Nelsonia, 1
Hygrophila, 2
Calophanes, 1
Ruellia, 3
Phaylopsis, 1
Dædalacanthus, 2
Hemigraphis, 1
Strobilanthes, 8
Blepharis, 2
Acanthus, 1
Barleria, 9
Crossandra, 1
Asystasia, 2
Eranthemum, 10
Andrographis, 2 ... ... Nela vembu
Gymnostachyum, 1
Lepidagathis, 2 ... ... Gantu kálu
Justicia, 8
Adhatoda, 1
Rhinacanthus, 1
Ecbolium, 1
Graptophyllum, 3
Rungia, 2
Dicliptera, 2
Peristrophe, 3
Cyrtanthera, 2
Aphalandra, 1
Meyenia, 2
Fittonia, 2

Verbenaceæ.

Lantana, 2
Lippia, 1 ... ... Kere hippali
Stachyturpheta, 2 Bastard Vervain
Priva, 1 ... ... Sirantu
Verbena, 4
Callicarpa, 1
Tectona, 2 ... Teak-tree ... Tégada mara
Premna, 1 ... ... Nárave
Gmelina, 2 ... ... Kúli
Vitex, 4 ... Chaste-tree Nekkilu

Clerodendron, 13
Holmskioldia, 1
Petrea, 1
Duranta, 2
Aloysia, 1 ... Lemon-scented verbena
Citharexylum, 1

Lantana is very entensively used for hedges.

Labiatæ.

Ocymum, 5 ... Sweet baril Tulasi
Orthosiphon, 2
Plectranthus, 2
Coleus, 4 ... Indian borage ... Dodda patri

Garden varieties of *coleus* are much prized as foliage plants.

Anisochilus, 2
Lavendula, 2 Lavender
Pogostemon, 2 ... Pachche tene
Dysophylla, 1
Perilla, 1
Mentha, 2 ... Peppermint Pudina
Origanum, 2... Marjorum
Thymus, 1 ... Thyme
Hyssopus, 1 ... Hyssop
Melissa, 1 ... Balm
Salvia, 8 ... Sage Karpúra gida
Marrubium, 1 Horehound
Anisomeles, 2 ... Mangamàri
Stachys, 1 ... Woundwort
Leonorus, 1 ... Motherwort
Leucas, 5 ... ... Tumbe
Leonotis, 1
Gomphostemma, 1
Rosmarinus, 1 Rosemary

Plantagineæ.

Plantago, 1 ... ... Sirapotli

Nyctagineæ.

Boerhaavia, 4 ... Hogweed
Pisonia, 1 ... ... Lettuce-tree
Mirabilis, 1 ... Marvel of Peru, Four o'clock plant
Bougainvillea, 3

The last grow and flower profusely at Bangalore.

Amarantaceæ.

Deeringia, 1
Celosia, 3 ... Cockscomb
Allmania, 1
Digera, 1
Amarantus, 12. ... ... Dantu
Pupalia, 2 ... ... Antu purule
Ærua, 3
Achyranthus, 3 ... ... Uttaráni
Alternanthera, 3

Extensively used as edgings for garden paths.

Gomphrena, 2 Globe amaranth
Iresine, 4

Chenopodiaceæ.

Chenopodium, 2 Goosefoot
Beta, 1 ... Beet
Spinacia, 1 ... Spinach ... Basale
Atriplex, 3 ... Orache
Basella, 1 ... ... Báyi Basali

Phytolaccaceæ.

Rivina, 1

Polygonaceæ.

Polygonum, 7 ... ... Síranige soppu
Fagopyrum, 1 Buckwheat
Rheum, 1 ... Rhubarb
Emex, 1
Rumex, 2 ... ... Sukke soppu
Coccoloba, 1
Antigonon, 1

Nepenthaceæ.

Nepenthes, 1... Pitcher plant

Aristolochiaceæ.

Aristolochia, 5

Piperaceæ.

Piper, 6 ... Pepper ... Menasu
Betel leaf ... Vílyad-ele
Peperomia, 4

Myristiceæ.

Myristica, 3 ... Nutmeg-tree Jáji káyi

Lauraceæ.

Cinnamomum, 2 Cinnamon Lavanga patte, Dalchini
Machilus, 1 ... ... Chittu tándri
Alseodaphne, 1
Litsæa, 1
Persea, 1 ... Alligator Pear
Hernandia, 2

Proteaceæ.

Helicia, 1
Macadamia, 1 Australian nut-tree
Grevillea, 2 ... Silver oak
Hakea, 3

Elæagnaceæ.

Elæagnus, 2 ... ... Hejjála

Loranthaceæ.

Loranthus, 4... ... ... Badanike

Old mango-trees in Mysore are much infested by these mistletoes.

Santalaceæ.

Santalum, 1 ... Sandalwood Srígandha

The most valuable tree in Mysore.

Euphorbiaceæ.

Euphorbia, 10 Milk hedge Kalli
Buxus, 1
Bridelia, 1. ... ... Gurige
Phyllanthus ... Gooseberry-tree ... Nelli
Glochidion, 1
Flueggia, 1
Breynia, 1 ... ... Súli
Putranjiva, 1
Antiderma, 1
Jatropha, 7 ... Physic-nut
Manihot, 1 ... Ceara rubber Tapioca
Aleurites, 1 ... Belgaum walnut
Croton, 1 ... Croton oil plant ... Jápála

Of so-called garden crotons, which properly belong to the genus *Codiæum*, 122 varieties are named as cultivated at Bangalore.

Givotia, 1
Codiæum, 1
Chrozophora, 1
Acalypha, 7 ... ... Kuppi
Trewia, 1.
Mallotus, 1 ... Kamala dye Kunkumada mara
Ricinus, 2 ... Castor-oil plant ... Haralu
Gelonium, 1
Tragia, 1
Dalechampia, 1
Sapium, 2 ... Tallow-tree
Excœcaria, 1
Baloghia, 1
Poinsettia, 2... Sand box-tree
Hura, 1
Anda, 1
Hevea, 2 ... Para rubber
Xylophylla, 1
Pedilanthus, 2
Synadenium, 1

Urticeæ.

Celtis, 1 ... ... Bendu
Trema, 1 ... Charcoal-tree ... Gorklu
Humulus, 1 ... Hop
Cannibis, 1 ... Hemp ... Bangi soppu

Cultivation prohibited in Mysore.

Streblus, 1 ... ... Mitli
Broussonetia, 1 Paper mulberry
Morus, 5 ... Mulberry Reshme gida, Kambali gida
Dorstenia, 1
Ficus, 25 ... Banyan Alada mara, Goni mara
Pipal Asvatha, arali mara
Basuri mara
Country fig Atti mara

Goni mara (*F. mysorensis*) is the largest species in the Mysore country. Specimens are not unusual with trunk 30 feet circumference, and head 140 feet diameter. The Java fig (*F. Benjamina*) and Moreton Bay chestnut (*F. macrophylla*) are highly ornamental trees.

Artocarpus, 4 Jack-tree ... Halasina mara
Urtica, 1 ... Nilgiri nettle
Fleurya, 1
Girardinia, 1
Pilea, 1
Bœhmeria, 3... Rhea Fibre or Grass-cloth plant
Pouzolzia, 1
Debregeasia, 1

Platanaceæ.

Platanus, 1 ... Oriental plane

Casuarineæ.

Casuarina, 7 ... ... Kesarike

C. equisetifolia is very extensively cultivated as a fuel-tree.

Cupuliferæ.

Quercus, 1 ... Oak

Will hardly grow here

Salicaceæ.

Salix, 2 ... Willow ... Niravanji

Ceratophylleæ.

Ceratophyllum, 1

Gymnospermæ.

Coniferæ.

Cupressus, 7 ... Cypress
Juniperus, 1 ... Juniper
Podocarpus, 2
Dammara, 2 ... New Zealand pine
Pinus, 2 ... ... Cheer pine
Frenela, 2 ... ... Tasmanian pine
Araucaria, 4 ... Pines
Abies, 2 ... ... Spruce
Wellingtonia, 1 ... Mammoth-tree
Cryptomeria, 1
Thuja, 1 ... ... Arbor vitæ
Retinospara, 3

Cycadaceæ.

Cycas, 5
Macrozamia, 1
Encephalartus, 1

Monocotyledons.

Hydrocharideæ.

Hydrilla, 1
Lagarosiphon, 1
Vallisneria, 1
Blyxa, 1
Ottelia, 1

Orchideæ.

Dendrobium, 37
Bulbophyllum, 2
Eria, 3
Phajus, 3
Cœlogyne, 7
Pholidota, 2
Calanthe, 2
Arundina, 1
Cymbidium, 3
Eulophia, 1
Cyrtopera, 1
Phalænopsis, 2
Ærides, 5
Vanda, 6
Saccolabium, 6
Vanilla, 2

Cultivated at Bangalore for its fruit.

Pogonia, 1
Habenaria, 1
Cypripedium, 4 ... Lady's slipper
Angræcum, 1
Bletia, 1
Oncidium, 1

A number of orchids are still undetermined.

Scitamineæ.

(Zingiberaceæ.)

Alpinia, 5
Zingiber, 2 ... Ginger ... Sonti
Costus, 2
Kæmpferia, 2 Indian crocus
Hedychium, 4 Garland flower
Curcuma, 4 ... Turmeric ... Arisina gida
Amomum, 1
Elettaria, 2 ... Cardamom Yelakki

(Marantaceæ.)

Maranta, 21
Canna, 10 ... Indian shot

(Musaceæ.)

Musa, 5 ... Plantain ... Bále gida

Of *M. paradisiaca* 15 varieties are named as in local cultivation.

Heliconia, 2
Strelitzia, 1
Ravenala, 1 ... Travellers' tree

Iridaceæ.

Gladiolus, 5 ... Corn flag
Iris, 3 ... ... Fleur-de-lis
Tigridia, 1 ... ... Tiger flower
Pardanthus, 1 ... Leopard flower
Antholyza, 1.

Amaryllideæ.

Crinum, 7
Pancratium, 1
Nerine, 1 ... Guernsey lily
Amaryllis, 5 ... Mexican lily
Eucharis, 2 ... Amazon lily
Zephyranthes, 3 American crocus
Curculigo, 2
Cyrtanthus, 1
Hæmanthus, 3 Blood flower
Doryanthes, 1
Agave, 6 ... American aloe Kattáli
Fourcroya, 4

Bromeliaceæ.

Æchmea, 2
Ananassa, 2 ... Pine apple Ananás
Billbergia, 1
Tillandsia, 2
Pitcairnia, 2
Bromelia, 1

Dioscoreaceæ.

Dioscorea, 8 Yam

Smilaceæ.

Smilax, 3 ... Sarsaparilla

Philesiaceæ.

Lapageria, 2

Liliaceæ.

Lilium, 5 ... Lily

Succeed indifferently at Bangalore.

Gloriosa, 1 ... ... Karadi kannina gida
Agapanthus, 2 African blue lily
Hemerocallis, 1 Day lily
Anthericum, 2 St. Bruno's lily
Tulipa, 2 ... Tulip
Polianthes, 2
Ornithogalum, 1 Star of Bethlehem
Sanseveira, 3 Bow-string hemp Manju
Allium, 5 ... Onion ... Irulli
Garlic ... Bellulli
Asparagus, 4 ... ... Majjige
Aspidistra, 3
Dracæna, 20... Dragon's blood

Very useful for decorative purposes.

Phormium, 2 New Zealand flax
Aloe, 3 ... Hedge aloe
Yucca, 5 ... Adam's needle
Eustrephus, 1

Pontederiaceæ.

Monochoria, 2

Commelynageæ.

Cyanotis, 2
Commelyna, 4
Aneilemma, 1
Nadescantia, 4

Palmaceæ.

Areca, 7 ... Areca-nut ... Adike
Arenga, 1 ... Sugar palm
Borassus, 1 ... Palmyra palm Tále
Caryota, 4 ... Sago palm Bagani
Chamærops, 3
Cocos, 2 ... Cocoa-nut ... Tengina mara

Several distinct varieties are cultivated.

Corypha, 2 ... Fan palm
Phœnix, 9 ... Date palm... Karjúra
Toddy palm Ichalu
Sabal, 2 ... Palmetto
Seaforthia, 1
Livistona, 2
Licuala, 2
Calamus, 6 ... Rattan-cane palm
Elæis, 1
Oreodoxa, 1
Kentia, 1
Thrinax, 3
Rhapis, 1 ... Ground rattan
Hyophorbe, 1
Dictyosperma, 1
Dypsis, 1
Wallichia, 1

Alismaceæ.

Sagittaria, 1

Pandanaceæ.

Pandanus, 4 ... Screw pine Gedige

Typhaceæ.

Typha, 2 ... Elephant grass ... Jambu hullu

Aroideæ.

Acorus, 2 ... Sweet flag
Calla, 1 ... Arum lily
Aglaonema, 3
Alocasia, 18
Amorphophallus, 3
Anthurium, 13
Arisæma, 2 ... Snake lily
Arum, 2 ... Lords and ladies
Caladium, 46

Grow to great perfection in Bangalore.

Dieffenbachia, 12
Philodendron, 5
Pothos, 5
Syngonium, 3
Curmeria, 1

Pistiaceæ.

Pistia, 1 ... Water soldier
Lemna, 1 ... Duckweed

Eriocauloneæ.

Eriocaulon, 2

Cyperaceæ.

Cyperus, 18 ... ... Jambu hullu
Timbristylis, 6 ... Sabbasige hullu
Isolepis, 3 ... ... Usumani hullu
Scirpus, 1 Club-rush Hommugali hullu
Courtoisia, 1
Tuirena, 2 ... ... Petlugori hullu
Kyllingia, 1 ... Anantagonde hullu

Gramineæ.

Triticum, 1 ... Wheat ... Godhi
Oryza, 1 ... Rice ... Nellu

There are specimens of 108 varieties in the Bangalore Museum.

Zea, 1 ... Maize, Indian corn ... Jola
Euchlæna ... Teosinte
Paspalum, 2 ... ...Sanna tapri hullu
Panicum, 21 ... Little millet Baragu; Italian millet Navane; Sáme; Háraka
Pencillaria, 1... Spiked millet Sajje
Setaria, 4 ... ... Korle hullu
Saccharum, 2... Sugar-cane Kabbu
Andropogon, 5.. Lemon grass Nese hullu; Lavanchi hullu; Kási hullu; Kuskus grass ...Ganjalu garika hullu
Sorghum ... Great millet Bili jola
Cymbopogon, 1 ... ...Dodda kási hullu
Chrysopogon, 2
Coix, 1 ... Job's tears
Apluda, 1
Anatherium, 1
Aristida, 4 ... Broom grass ... Hanchi hullu
Cynodon, 1 ... Hariáli, or doub grass ... Garike hullu

The best Indian grass for making hay.

Chloris, 1
Microchlon, 1
Lappago, 1
Isachne, 1
Sporobolus, 2... Fox-tail grass
Oplismenus, 4
Manisurus, 1
Batratherum, 1
Trachys, 1
Dactyloctenium, 1 ... Buffalo-head grass
Leptochloa, 2
Perotis, 1
Eragrostis, 11
Leersia, 1
Chamæraphis, 1
Imperata, 1
Gymnothrix, 1 Nose hullu
Spodiopogon, 1
Heteropogon, 1
Elytrophorus, 1
Anthisteria, 1
Hemarthria, 1
Arundinella, 2
Eleusine, 2 ... Rági ... Rági

The staple grain of Mysore.

Avena, 1 ... Oat grass
Briza, 1 ... Quaking grass
Dactylis, 1 ... Cock's-foot grass
Lolium, 1 ... Darnel rye grass
Heleochloa, 1 ... ... Jandu hullu

(Bambusaceæ.)

Dendrocalamus, 1
Arundinaria, 2
Bambusa, 5 ... Bamboo ... Bidiru
Beesha, 2 ... Quill bamboo

Cryptogams.

Filices.

Acrostichum, 8
Actinopteris, 1
Adiantum, 32 ... Maiden-hair fern
Alsophila, 1 ... Tree fern
Anemia, 1
Angiopteris, 1
Aspidium, 4 ... Wood fern
Asplenium, 20 ... Spleenwort
Athyrium, 1 ... Lady fern
Blechnum, 4 ... Hard fern
Ceropteris, 1
Cheilanthus, 3
Cyrtomium, 2
Davallia, 5
Doodia, 1
Drynaria, 1
Gleichenia, 1
Goniopteris, 1
Gymnogramma, 3 ... Golden fern; Silver fern
Hemionitis, 1
Hemitalia, 1
Hypolepis, 1
Lastrea, 3
Lindsæa, 1
Lomaria, 1
Lygodium 2 ... Climbing fern

Nephrodium, 17
Nephrolepis, 8
Niphobolus, 1
Onychium, 2
Ophioglossum, 1
Osmunda, 1 ... Royal fern
Pellæa, 2
Pleopeltis, 1
Polybotrya, 1
Polypodium, 12
Pteris, 15
Sagenia, 1
Scolopendrium, 1

Lycopodiaceæ.

Lycopodium, 2 ... Club-moss
Selaginella, 13

Of *grasses* indigenous to Mysore, the following is a descriptive list of those fit for stacking[1] :—

Garike.—A kind of *hariáli*, grows to about 3 feet, a good nourishing grass, grows almost anywhere, but is best in light soil and with moderate moisture (Cynodon dactylon).

Ganjalu Garike.—A kind of *hariáli*, very valuable for all purposes, and said to increase the milk-giving powers of cows; makes very good hay. Grows in light soil with moderate moisture (Andropogon Bladhii).

Hanchi.—A coarse common grass, grows in any sort of place, it runs much to stalk, and is not very nourishing because of the hardness of the stalk; there are two kinds, one coarser than the other (Aristida cærulescens).

Kardá.—(Spear grass.) Good when young, but dries up into sticks in the hot weather; very common all over the country (Andropogon pertusus).

Darbhe.—A rushy kind of grass, grows in swamps and jheels, has a feathery flower, and its seeds fly. It grows to about 4 feet in height. Cattle only eat it when young; it makes indifferent hay (Eragrostis cynosuroides).

Phára or *Máni.*—A very valuable grass, good for every kind of cattle. grows anywhere, but best on black cotton soil; attains the height of about 1 foot, and throws up a long flowering stalk.

Uppála.—A rushy kind of grass in jheels and swamps, height about 4 feet, nourishing and liked by cattle. Makes indifferent hay.

Sunti.—Grows in jheels, paddy fields and swamps, very good grass, makes good hay, reaches about 3 feet in height (Panicum repens).

Node.—A long rushy grass, grows only in damp jungles, acts as a purge on cattle, good for hide-bound beasts.

Solali.—Found in jheels, and grows to about 3 feet, makes indifferent hay. When young it is liked by, and good for, cattle, but its chief value is from the small grasses which are always found growing round the bottom of its stem.

Marahullu.—A good grass, grows to about 3 feet, is of a nourishing nature, requires a good deal of moisture.

The following are not good for stacking; they grow mixed together, *gondyada* or *chenlágam*, *bhímam*, *biduru-yele*, *yenuamatti*, *bili-hullu*, *timmattakam*, *naribála*, *akki-hullu*, *hiré*.

There are also certain plants or herbs which are of great use to cattle; the best of these is called *purtanipuli*, which has seeds like burrs, with a thick-jointed sappy stem; grows along the ground, is very good for milch cattle.

[1] From a memorandum by Colonel Boddam. The botanical name has been added where it could be identified.

CROPS AND CULTIVATION[1]

Cultivated lands are usually classed as dry, *kushki;* wet, *tari;* and garden, *tóṭa* or *bágáyat.* In the first are raised crops which do not require irrigation, *pair-áramba:* the wet crops are those dependent for their growth entirely on irrigation, *nír-áramba:* the products of garden cultivation are fruits or drugs requiring a moist situation with an abundant supply of water. Gardens are of four kinds: *tarkári tóṭa*, vegetable gardens; *tengina* or *aḍike tóṭa*, cocoa-nut or areca-nut plantations; *yele tóṭa*, betel leaf plantations; and *húvina tóṭa*, flower gardens. The agricultural seasons are two, and the produce is called *Kártika fasal* or *Vais'ákha fasal* according to the time of ripening.[2] In the Mysore District the seasons are named *káru* and *hainu.* In parts of the Malnád the former has the name *kóḍu.*

But the farmer's calendar is regulated by the rains that fall under each of the *nakshatras* or lunar asterisms, after which they are called. The following are the names, with the generally corresponding months:—

Nakshatra.	*Lunar Month.*		*Solar Month.*	
As'vini	Chaitra			
Bharani		April	Mesha	Aries
Krittika	Vais'ákha			
Rohini		May	Vrishabha	Taurus
Mrigas'ira	Jyeshṭha			
Árdra		June	Mithuna	Gemini
Punarvasu	Áshádha			
Pushya		July	Karkátaka	Cancer
As'lesha				
Magha	S'rávana			
Pubba		August	Simha	Leo
Uttara	Bhádrapada			
Hasta		September	Kanya	Virgo
Chitta	As'víja			
Sváti		October	Tula	Libra
Vis'ákha	Kártika			
Anurádha		November	Vris'chika	Scorpio
Jyeshṭha				
Múla	Márgas'ira			
Púrváshádha		December	Dhanus	Sagittarius
Uttaráshádha	Pushya			
S'ravana		January	Makara	Capricornus

[1] Buchanan's full and accurate accounts have been freely used in describing the modes of cultivation.

[2] *Kártika* falls in October—November; *Vais'ákha* in April—May.

Nakshatra.	*Lunar Month.*		*Solar Month.*	
Dhanishtha ...	Mágha			
S'atabhisha ...	...	February ...	Kumbha ...	Aquarius
Púrvabhádra	Phálguna			
Uttarabhádra	...	March ...	Mína ...	Pisces
Revati				

Bharani rain is considered to prognosticate good seasons throughout the year. This is expressed in the Telugu proverb *Bharani vaste dharani paṇḍudu*—if Bharani come, the earth will bring forth. The rains from Mrigas'ira to As'lesha are the sowing time, for food grains in the earlier part, and horse-gram in the later. Sváti and Vis'ákha rains mark the close of the rainy season. Anurádha to Múla is the reaping time, when only dew falls. At this season the future rains are supposed to be engendered in the womb of the clouds. Sugar-cane is planted in Púrvabhádra and Uttarabhádra.

The absolute dependence of all classes on the *panchánga* or almanac is thus explained by Buchanan:—"Although, in common reckoning, the day begins at sunrise, yet this is by no means the case in the *chandramánam* almanac. Some days last only a few hours, and others continue for almost double the natural length; so that no one, without consulting the Panchángadava or almanac-keeper, knows when he is to perform the ceremonies of religion. What increases the difficulty is, that some days are doubled, and some days altogether omitted, in order to bring some feasts, celebrated on certain days of the month, to happen at a proper time of the moon, and also in order to cut off six superfluous days, which twelve months of thirty days would give more than a year of twelve lunations. Every thirtieth month one intercalary moon is added, in order to remove the difference between the lunar and solar years. As the former is the only one in use, and is varying continually, none of the farmers, without consulting the Panchángadava, knows the season for performing the operations of agriculture. These Panchángadavas are poor ignorant Brahmans, who get almanacs from some one skilled in astronomy. This person marks the days, which correspond with the times in the solar year, that usually produce changes in the weather, and states them to be under the influence of such and such conjunctions of stars, male, female, and neuter; and everyone knows the tendency of these conjunctions to produce certain changes in the weather."

The following is a list of the most generally cultivated productions of the soil:—

Dry Crops.

Cereals.

Eleusine corocana, *Gærtn.* ...	Rági	Rági.
Panicum frumentaceum, *Roxb.* ...	Little millet	Sáme, sáve.

Panicum italicum, *Linn.*	Italian millet	Navaṇe.
,, miliaceum, *Linn.*	Common millet	Baragu.
,, semiverticillatum	...	Háraka.
Pennisetum typhoideum, *Rich.*	Spiked millet	Sajje.
Sorghum vulgare, *Pers.*	Great millet	Joḷa.

Pulses.

Cajanus indicus, *Spreng.*	Pigeon pea, doll	Togari, tovari.
Cicer arietinum, *Linn.*	Bengal gram, chick pea	Kaḍale.
Dolichos biflorus, *Linn.*	Horse gram, kulti	Huraḷi.
,, lablab, *Linn.*	Cow gram	Avare.
Lens esculenta, *Mœnch.*	Lentil	Channangi.
Phaseolus mungo, *Linn.*	Green gram	Hesaru.
,, ,, var. radiatus, *Linn.*	Black gram	Uddu.
Vigna catiang, *Endl.*	...	Alsandi, taḍugaṇi.

Oil seeds.

Guizotia abyssinica, *Cass.*	Foolish oil plant	Huchcheḷḷu, rámtil.
Ricinus communis, *Linn.*	Castor oil	Haraḷu.
	Wild ,,	Káḍ-, doḍ-, or mara-haraḷu.
Sesamum indicum, *D.C.*	Gingelli, sesame	Woḷḷeḷḷu, achcheḷḷu.

Miscellaneous.

Brassica nigra, *Koch.*	Mustard	Sásive.
Crotolarea juncea, *Linn.*	Indian hemp	Saṇabu.
Gossypium herbaceum, *Linn.*	Cotton	Araḷe.
Hibiscus cannabinus, *Linn.*	Dekhan hemp	Punḍi.
Nicotiana tabacum, *Linn.*	Tobacco	Hoge soppu.

Wet Crops.

Oryza sativa, *Linn.*	Rice	Bhatta, nellu.
Saccharum officinarum, *Linn.*	Sugar-cane	Kabbu.

Garden Crops.

Allium cepa, *Linn.*	Onion	Níruḷḷi.
,, sativum, *Linn.*	Garlic	Beḷḷuḷḷi.
Arachis hypogæa, *Linn.*	Ground-nut	Kallekáyi, nela kaḍale.
Capsicum annuum, *Linn.*	Chilly	Meṇsina káyi.
Carum copticum, *Benth.*	Bishop's weed	Oma.
Carthamus tinctorius, *Linn.*	Safflower	Kusumba.
Coriandrum sativum, *Linn.*	Coriander	Kottambari.
Cuminum cyminum, *Linn.*	Cummin seed	Jírige.
Curcuma longa, *Roxb.*	Turmeric	Arisina.
Trigonella fœnum græcum, *Linn.*	Fenugreek	Mentya.
Zingiber officinale, *Rosc.*	Ginger	Sunṭi.

Miscellaneous.

Areca catechu, *Linn.*	Areca-nut	Adike.
Cocos nucifera, *Linn.*	Cocoa-nut	Tengina káyi.
Coffea arabica, *Linn.*	Coffee	Búndu, kápi.
Elettaria cardamomum, *Maton.*	Cardamom	Yélakki.
Morus indica, *Linn.*	Mulberry	Uppu nerle, kambaḷi giḍa.
Musa sapientum, *Linn.*	Plantain	Báḷe.

Piper betle, *Linn.*	Betel vine	Viḻed-ele.
,, nigrum, *Linn.*	Black pepper	Meṇasu.
Triticum sativum, *Lamk.* ...	Wheat	Gódhi.

The total area taken up for cultivation in 1891–2 is stated at 5,685,160 acres, of which 4,601,729, or 80·9 per cent., were for dry cultivation; 697,419, or 12·2 per cent., for wet cultivation; 234,955, or 4·1 per cent., for garden cultivation; and 148,834, or 2·6 per cent., for coffee. The approximate area actually under crops from 1870, so far as figures are available from the Annual Reports, may be gathered from the following statement, expressed in millions of acres:—

1870 ...	5·15	1876 ...	5·53	1882 ...	4·51	1887 ...	5·24
1871 ...	4·91	1877 ...	4·38	1883 ...	4·65	1888 ...	5·28
1872 ...	5·26	1878 ...	4·39	1884 ...	4·47	1889 ...	5·53
1873 ...	5·20	1879 ...	3·99	1885 ...	4·88	1890 ...	5·60
1874 ...	5·22	1880 ...	4·28	1886 ...	5·10	1891 ...	5·68
1875 ...	5·02	1881 ...	4·35				

In 1865 the acreage seems to have been 3·14 millions, so that cultivation has increased 80 per cent. in twenty-seven years since. But part of the increase may, no doubt, be attributed to more accurate measurement, resulting from the progress of the Revenue Survey. In the first series the highest point was reached apparently in 1876, just before the great famine; but the crops of that year perished, and it was thirteen years before cultivation spread to the same extent again. Adopting intervals of five years, the percentage of approximate acres returned as under various crops was as follows:—

Crops.		1871.	1876.	1881.	1886.	1891.
Dry ...	Rági	66·04	84·	75·11	73·4	45·9
	Other Food Grains ...					28·6
	Oil Seeds	2·1	2·2	3·06	4·5	4·1
	Cotton	·78	·09	—	·87	·71
	Tobacco	·4	·21	—	·92	·2
	Wheat	·25	·1	·4	·36	·06
Wet ...	Rice	24·5	8·	12·73	13·3	12·7
	Sugar-cane	·45	·2	—	·72	·62
	Mulberry	·28	·2	—	·2	·24
Garden	Cocoa-nut and Areca-nut	1·	2·3	3·1	2·7	2·8
	Vegetables	1·9	·5	—	·66	1·1
	Coffee	2·3	2·1	3·2	2·1	2·6

The most important fluctuation exhibited by these figures is an apparent relinquishment of rice cultivation in favour of the cultivation of rágí and associated food grains, and of oil seeds. This movement, which took place in the years 1871 to 1873, is not specially noticed in the Reports. But it appears to have been coincident with a change of policy whereby the control of irrigation channels and tanks was transferred from the Revenue officers to the Public Works Department, with the view of their being systematically repaired, the necessity for which had long been recognized, and brought up to a good standard of safety. The former frequent waste of water was now checked, and steps were taken to enforce the responsibilities of the cultivators in regard to the maintenance of the restored irrigation tanks. Moreover, as the new Revenue Survey approached the rice districts, it was now realized that all occupied lands were liable to pay the assessment, whether cultivated or not. Hence perhaps a reduction in the area of wet cultivation which the statistics disclose, the actual area under rice having dropped from 1·32 million acres before 1871 to little over half a million in the subsequent year. Another explanation may be found in the following statement from the Report for 1871–2:—"The fall in the value of produce has been attended by considerable relinquishments of land, chiefly on the part of speculators, who appear to have taken up land wherever it could be obtained during the period of high prices, and who, doubtless, in many instances have found it no longer worth retaining."

The following figures, taken from the returns for 1891–2, are instructive as showing the Districts in which the cultivation of particular products is most extensive. Mysore and Bangalore grow the most rági, followed by Túmkúr, Hassan, and Kolar, in this order. Chitaldroog and Mysore have the largest area under other dry grains and oil seeds. Chitaldroog is pre-eminently the cotton district, and also takes the principal lead in the limited area under wheat. Mysore produces the most tobacco. Shimoga is the chief rice district, the cultivation being to a great extent dependent on the rains alone: Mysore follows, with its splendid system of irrigation channels: Kadur and Hassan come next, partaking of the character of both. Shimoga, Kolar, and Hassan are the principal sugar-cane districts. Mulberry cultivation, for the nourishment of silkworms, is confined entirely to Mysore and the eastern districts. Túmkúr stands first in cocoa-nut and areca-nut gardens, especially the former, followed by Hassan, Mysore and Shimoga, which last excels in areca-nut. Kolar cultivates the largest extent of vegetables, while Bangalore and Túmkúr come next, a good way after. Kadur and Hassan are almost exclusively the coffee districts.

District.	Number of Acres Cultivated with—											
	Rági.	Other Food Grains.	Oil Seeds.	Cotton.	Tobacco.	Wheat.	Rice.	Sugar-cane.	Mulberry.	Cocoa-nut and Areca-nut.	Vege-tables.	Coffee.
Bangalore ...	449,986	23,440	10,944	—	1,235	2	42,062	2,169	3,616	8,183	11,514	—
Kolar ...	256,009	66,947	11,508	—	826	69	40,476	7,492	1,751	1,709	27,032	15
Túmkúr ...	308,427	175,187	28,308	4,188	1,541	43	28,805	961	1,316	38,725	7,048	—
Mysore ...	538,178	359,914	60,385	1,216	5,179	32	107,860	4,809	5,564	22,666	2,615	—
Hassan ...	294,494	76,747	33,797	166	1,551	67	93,215	7,043	—	24,791	2,905	51,935
Shimoga ...	161,504	155,937	10,999	1,633	489	525	199,705	7,920	—	21.375	2,398	707
Kadur ...	115,364	89,551	11,701	976	530	692	96,339	765	—	18,582	267	77,383
Chitaldroog	176,461	485,756	39,702	27,755	1,060	1,589	26,656	774	—	5.850	3.960	—
Total ...	2,300,425	1,433,479	207,344	35,934	12,411	3,019	635,118	31,933	12,247	141,881	57,739	130,040

Rágí—(the *marwa* or *mandwa* of northern India) is by far the most important of any crop raised on dry fields and supplies all the lower ranks with their common diet. It is reckoned the most wholesome and invigorating food for labouring people.[1] Three kinds are distinguished of it, which, however, are only varieties; the *kari* or black, *kempu* or red, and *hullupare*. All are equally productive, but the third when nearly ripe is very apt to shake the seed. In some places all three are sown intermixed in the same field, but in others more attention is paid to the quality of the grain. The black is considered in some parts to be simply grain that has got wet when it is threshing.

The principal varieties in the eastern districts are the *gidda rági* and *dodda rági*. The former ripens in four months, and the latter in four and a half; and the latter is esteemed both the best in quality, and the most productive; but when the rain sets in late, as it requires less time to ripen, the gidda is preferable. In the Mysore District the gidda rági is called *kár rági*, and somewhat different. There are three kinds of *kár rági*: the *balaga*, or straight-spiked rági, which is always sown separately from the others; the *bili modgala*, or white rági with incurved spikes; and the *kari modgala*, or incurved black rági: the two latter are sometimes kept separate, and sometimes sown intermixed. The cultivation for all the three is quite the same and the value of the different kinds is equal; but the produce of the *kari modgala* is rather the greatest.

"The whole world," says Wilks, "does not, perhaps, exhibit a cleaner system of husbandry than that of the cultivation of rági in the home fields of Mysore. On the first shower of rain after harvest the home fields are again turned up with the plough,[2] and this operation, as showers occur, is repeated six successive times during the dry season, at once destroying the weeds and opening the ground to the influence

[1] The following is the composition of rági grain according to Professor Church in *Food Grains of India*:—

	In 100 parts Husked	Whole	In 1 lb.
Water	13·2	12·5	2 oz 0 grains
Albuminoids	7·3	5·9	0 ,, 413 ,,
Starch	73·2	74·6	11 ,, 409 ,,
Oil	1·5	0·8	0 ,, 56 ,,
Fibre	2·5	3 6	0 ,, 252 ,,
Ash	2·3	2·6	0 ,, 182 ,,

The nutrient ratio is here 1 : 13, the nutrient value 84. The percentage of phosphoric acid in the whole grain is about 0·4.

[2] This is the practice in the Mysore District, but in the eastern districts the fields are left untouched after harvest, with the stubble standing, until the early rains of the following spring.

of the sun, the decomposition of water and air, and the formation of new compounds. The manure of the village, which is carefully and skilfully prepared, is then spread out on the land, and incorporated with it by a seventh ploughing, and a harrowing with an instrument nearly resembling a large rake, drawn by oxen and guided by a boy: when the field is completely pulverized, a drill plough, of admirable and simple contrivance, performs the operation of sowing twelve rows at once by means of twelve hollow bamboos at the lower end, piercing a transverse beam at equal intervals and united at the top in a wooden bowl, which receives the seed and feeds the twelve drills: a pole at right angles with this beam (introduced between two oxen) is connected with the yoke; the bamboos project below about three inches beyond the transverse beam, being jointed at their insertion for the purpose of giving a true direction to the projecting parts, which being cut diagonally at the end, serve, when the machine is put in motion, at once to make the little furrow and introduce the seed: a flat board, placed edgewise and annexed to the machine, closes the process; levelling the furrows and covering the seed. If the crop threatens to be too early or too luxuriant, it is fed down with sheep. Two operations of a weeding plough of very simple construction, at proper intervals of time, loosens the earth about the roots and destroys the weeds; and afterwards during the growth of the crop, at least three hand weedings are applied. This laborious process rewards the husbandman in good seasons with a crop of eighty fold from the best land. The period between seed-time and harvest is five months. There is another kind of rági which requires but three months. It is sown at a different season in worse ground, and requires different treatment."

In some parts, as near Seringapatam, the ground having been prepared in the same way, the rági is sown broad-cast, and covered by the plough. The field is then smoothed with the *halive*, which is a harrow or rather a large rake drawn by two bullocks. Then, if sheep are to be had, a flock of them is repeatedly driven over the field, which is supposed to enable it to retain the moisture; and for this purpose bullocks are used when sheep cannot be procured. Next day single furrows are drawn throughout the field at the relative distance of six feet. In these are dropped the seeds of either *avare* or *tovari*, which are never cultivated by themselves; nor is *rági* ever cultivated without being mixed with drills of these leguminous plants. The seed of the avare or tovari is covered by the foot of the person who drops it into the furrow. Fifteen days afterwards the *kunte* or bullock-hoe is drawn all over the field; which destroys every young plant that it touches, and brings the remainder into regular rows. On the thirty-fifth day the

kunte is drawn again, at right angles to its former direction. On the forty-fifth day it is sometimes drawn again; but when the two former ones have sufficiently thinned the young corn, the third hoeing is not necessary. At the end of the second month, the weeds should be removed by the small iron instrument called *ujari*. According to the quantity of rain, the rági ripens in from three to four months. The avare and tovari do not ripen till the seventh month. The reason of sowing these plants along with the rági seems to be that the rains frequently fail, and then the ragi dies altogether, or at least the crop is very scanty; but in that case the leguminous plants resist the drought and are ripened by the dews, which are strong in autumn. When the rági succeeds, the leguminous plants are oppressed by it and produce only a small return; but when the rági fails, they spread wonderfully and give a very considerable return.

In other places, as in Kolar, where the seed is sown by the drill-plough, *kúrige*; behind the kúrige is tied the implement called *sudike*, into which is put the seed of the avare or tovari; by this method, for every twelve drills of rági there is one drill of pulse. After the field has been sown, it is harrowed with the bullock-rake called *halive*, and then smoothed with a bunch of thorns, which is drawn by a bullock and pressed down by a large stone. Here sheep are only used to trample the rági fields when there is a scarcity of rain. The bullock-hoe called *kunte* is used on the fifteenth and eighteenth days after sowing. On the twenty-sixth day the harrowing is repeated. On the thirty-second the field is cleared from weeds with the implement called *oravari*. In four months the rági ripens and in five the pulses.

In the west, about Periyapatna, in very rich soils, nothing is put in drills along with rági; but immediately after that grain has been cut, a second crop of *kaḍale* is sown, which does not injure the ground. Sometimes a second crop of *sáme* or of *huchcheḷḷu* is taken; but these exhaust the soil much. When rain does not come at the proper season, the rági fields are sown with *huraḷi*, *kaḍale*, *huchcheḷḷu*, or *kari-sáme*. The two leguminous plants do not injure the soil; but the huchcheḷḷu and sáme render the succeeding crop of rági very poor.

In Shimoga the rági seed, mixed with dung, is placed very thin with the hand in furrows drawn at the distance of about seven inches throughout the field, a small quantity being dropped at about every ten inches. In every seventh furrow are put the seeds of *avare*, *tovari*, and *pundi* intermixed, or of *uddu* by itself.

Rági is reaped by the sickle, and the straw is cut within four inches of the ground. For three days the handfuls are left on the field; and then, without being bound up in sheaves, are stacked, and the whole is

well thatched. At any convenient time within three months it is opened, dried two days in the sun, and then trodden out by oxen. The seed, having been thoroughly dried in the sun, is preserved in straw *múḍe.* The remainder is put into pits, or *hagevu* ; where, if care has been taken to dig the pit in dry soil, it will keep in perfect preservation for ten years.

Rági is always ground into flour, as wanted, by means of a hand-mill called *bísa-gallu.* In this operation it loses nothing by measure. The flour is dressed in various ways. The most common are, a kind of pudding called *hiṭṭu*, and two kinds of cakes called *roṭṭi* and *dóshe*, both of which are fried in oil. For all kinds of cattle, the rági straw is reckoned superior to that of rice.[1]

[1] The following is an estimate by Dr. Forbes Watson of the food-value of rági and other Indian grains, taken from Mr. Elliot's book (*Experiences of a Planter*).

"The position of rági as food, when compared with some of the other Indian cereals, appears from the following table :—

Name of the Grain	Wheat	Bajree (*Penicillaria spicata*)	Jowaree (*Sorghum vulgare*)	Rice (*Oryza sativa*)	Rági (*Elcusine corocana*)
Number of analyzed samples	9	3	2	9	7
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Moisture	12·00	12·00	12·00	12·00	12·00
Nitrogenous matter					
Gluten, albumen, &c. ...	13·42	10·27	9·38	7·40	6·53
Cellulose or woody fibre	2·69	1·49	2·23	·39	3·36
Carbonous matter					
Starch, gum, &c. ...	68·81	71·01	72·68	78·97	74·44
Fat or oil	1·15	3·27	2·04	·57	1·17
Oxide of iron	·019	·026	·018	·008	064
Potassa	·214	·405	·207	·066	·534
Soda	·392	·132	·135	·082	·019
Lime	·068	·064	·094	·026	·617
Magnesia	·241	·239	·260	·103	·163
Chlorine	·059	·058	·016	·016	·048
Phosphoric acid ...	·817	·678	·856	·287	·595
Sulphuric acid	·154	·105	·108	·080	·110
Silica	·029	·375	·088	·092	·334

The order according to which these cereals are arranged is determined by the amount of nitrogenous matter they contain. Wheat stands pre-eminent, followed by bajree and jowaree [or sajje and jola], whilst rice and rági occupy the lowest position. It will be observed that, in order to avoid the perturbations in the natural order which may arise from a varying amount of moisture in the grains, all the analyses have been reduced to a common moisture of twelve per cent., which is that to which all grains more or less approach. The numbers inserted in the table are, therefore, true comparative numbers.

The rágis grown at different places seem to show almost a greater latitude in composition than most of the other grains. Among the seven samples analyzed the amount of nitrogenous matter varies between 5·49 and 9·24 per cent., so that, although

Tóṭa or *ṉáṭ rági* is not the same with that cultivated on dry grounds, although in the sense adopted by botanists it is not specifically different; but the seed which is raised on dry fields will not thrive in gardens; nor will that which is raised in gardens thrive without irrigation. Garden rági is always transplanted, and hence it is called *ṉáṭi*. The following is the process followed in the Kolar District. For the seedling bed, dig the ground in Pushya (Dec.—Jan.) and give it a little dung. Divide it into squares, and let it have some more manure. Then sow the seed very thick; cover it with dung, and give it water, which must be repeated once in three days. The ground into which it is to be transplanted, is in Pushya ploughed five times, and must be dunged and divided into squares with proper channels. About the beginning of Mágha, or end of January, water the seedlings well, and pull them up by the roots: tie them in bundles, and put them in water. Then reduce to mud the ground into which they are to be transplanted, and place the young rági in it, with four inches distance between each plant. Next day water, and every third day for a month this must be repeated. Then weed with a small

the average is inferior to the rice, there are samples which may be richer in nitrogen than most of the rices. Still, this is only one aspect of the question. The amount of nitrogen is too often looked upon as the only exponent of the nutritive value. This is a very circumscribed view of the extremely complicated and many-sided problem of nutrition. Each of the normal components of the human body can become of paramount importance under certain conditions. The oxide of iron in the ash of the grains amounts only to some tenths of a per cent.; but still the regular supply even of this small quantity is essential for the proper performance of the vital functions, as it is indispensable in the formation of the blood-corpuscles. A dearth of iron would, therefore, be just as fatal as a want of the nitrogenous, or carbonous, or other principal constituent of food. In judging, therefore, of the relative value of an article of food, the amounts of nitrogen and carbon cannot be relied on as the sole guide. The mineral constituents must be taken into account. At the time when I published my first analyses of rági, these extended only to the organic compounds of the grain, and the position which I then assigned to it—guided only by the percentage of nitrogen—has been borne out by the subsequent analyses. Since then, however, a detailed examination of the ash has been made, which yielded some remarkable conclusions. The rági seems to be uncommonly rich in certain important mineral constituents. The amount of phosphoric acid in rági is only lower by one-fourth than that in wheat, and it is more than twice as high as in rice. It contains eight times as much iron, and eight times as much potassa as rice, and, indeed, more of potassa than any of the other grains. It is, likewise, exceptionally rich in lime. The ash, composed, as it chiefly is, of the most important elements, amounts on the average to 2⅓ per cent. in rági, as compared with 0·760 per cent. contained in rice. It is therefore possible, if not indeed probable, that the large amount and favourable composition of the rági ash may more than counterbalance its inferiority in nitrogen, so that although, according to the nutritive standard hitherto in use, it must be put below rice, rági may still be, on the whole, a food satisfying by itself more completely the numerous exigencies of an article of human diet than rice."

hoe, and water once in four days. It ripens in three months from the time when the seed was sown; and in a middling crop produces twenty fold. It is only sown on the ground at times when no other crop could be procured, as the expense of cultivation nearly equals the value of the crop. Another kind of nát rági cultivated in Sira as a Vais'ákha crop is called *tripati.*

Avare—is never cultivated alone, but always with rági, as described above. When ripe, the legumes are nearly dry. The plant having been cut and for one day exposed to the sun, is beaten with a stick to separate the seed. That which is designed for seed is preserved in *múḍes*; while that for consumption is kept in pots, and is used in curries. The straw is eaten by all kinds of cattle except horses.[1]

Togari (or **Tovari)**—is also cultivated only with rági, as described above. It is cut when almost dry, then put up in heaps, and on the day after it is opened to dry in the sun. The grain is beaten out with a stick; and that intended for sowing must be preserved in a straw *múḍe.* It is used in curry. After the seed has been threshed, cattle eat the husks of the legume. The straw is used for fuel. A larger variety, called *turuka togari*, is produced by garden cultivation.[2]

The best soil for the cultivation of these three articles is the black soil, or *ere bhúmi*; which yields a crop of rági every year, and even without manure will give a considerable return; but when it can be procured, dung is always given. After a crop of *jóḷa*, rági does not thrive; but jóḷa succeeds after a crop of rági. The next best soil for rági, and the one most commonly used, is the *kebbe* or red soil. In this also it is sometimes cultivated without dung; but it requires to be manured at least once in two or three years. In *maraḷu*, or sandy, and *dare* soils, it every year requires dung.

Jola—next to rági is the most considerable dry crop. In the south it is often sown for fodder; for, when the crop is not uncommonly good,

[1] The following is Professor Church's analysis of avare beans :—

	In 100 parts		In 1 lb	
	Husked	With husk	oz	grs
Water	12·1 ...	12·1 ...	1	410
Albuminoids	24·4 ...	22·4 ...	3	255
Starch	57·8 ...	54·2 ...	8	294
Oil	1·5 ...	1·4 ...	0	98
Fibre	1·2 ...	6·5 ...	1	17
Ash	3·0 ...	3·4 ...	0	238

The nutrient ratio deduced is 1 : 2·5 ; the nutrient value 80.

[2] According to the same authority 1 lb of the pea would contain 1 oz 361 grains of water, 3 oz 208 grains of albuminoids, and 9 oz 11 grains of starch. The nutrient ratio would be about 1 : 3 ; the nutrient value 80.

the grain is no object. It is cut and given to the cattle at a time when rági straw is not to be procured. Previously to being given to cattle, however, it must be dried, as the green straw is found to be very pernicious. There are two kinds of *jóḷa*; the white (*bili*) and red (*kempu*). When they are intended to be cut for the grain, these are sown separately; as the red kind ripens in three months, while four are required to ripen the white jóḷa. A red rági soil is preferred for it, and crops of rági and jóḷa are generally taken alternately, the crop of rági having an extraordinary allowance of dung. The jóḷa requires less rain than the rági, and admits of a second crop of *hurali* being taken after it; and thus, in the course of two years, there are on the same ground three crops.

The jóḷa is both made into flour for puddings and cakes, and is boiled whole to eat with curry, like rice. It is a good grain; but at the utmost does not keep above two years.

The *jóḷa* that is cultivated on dry field in Madgiri is of three kinds: *agara*, *kempu*, and *hasaru*. They are all, probably, mere varieties. The best soil for them is a black clay; and the next, the same mixed with sand. For rági these soils are of a poor quality; but on the same dry field jóḷa and rági may be alternately cultivated without injuring either. In Vais'ákha, or the second month after the vernal equinox, plough four times. After the next rain sow the seed. It is sown either broad-cast or by dropping it in the furrow after the plough. Smooth the field by drawing a plank over it. It requires neither weeding nor manure. For fodder its straw is inferior to that of rági, but superior to that of rice. *Agara* jóḷa ripens in $4\frac{1}{2}$ months, *kempu* and *hasaru* in four months. Their produce is rather less in the order they are mentioned.

Towards Harihar the jóḷa crop is always accompanied by one or more of the following articles: *avare*, *togari*, *hasaru*, *madiki*, *hurali*, and *alasandi*. These being intended chiefly for family use, a portion of each is wanted, and every man puts in his jóḷa field a drill or two of each kind. Jóḷa thrives on black clay, but is also sown on the red earth, and even sometimes on the stony soil. In Chaitra the field is hoed with a *heg-kunte*, which requires from six to eight oxen to draw it; for this is the month following the vernal equinox, when the soil is very dry and hard. In the following month the field is ploughed once, and then manured. In the month preceding the summer solstice, the seed is sown after a rain by means of the drill; while the rows of the accompanying grains are put in by means of the *sudike*, which is tied to the drill. The field is then smoothed with the *bólu kunte*, a hoe drawn by oxen, of lighter make than the *heg-kunte*. On the twentieth

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day the field is weeded with the *ede kunte*, and on the twenty-eighth day this is repeated. In five months the jóḷa ripens, without further trouble.[1]

In the north of the Túmkúr District a few fields of watered land are entirely allotted for the cultivation of *bili jóḷa*. The soil of these is a rich black mould, but does not require much water. Only one crop a year is taken. The produce is great, not only as an immense increase on the seed sown, but as affording a great deal of food. The following is the mode of cultivation :—Begin to plough in Vais'ákha and in the course of seven months plough eight or nine times. Then manure with dung, mud from the bottom of tanks, and leaves of the *honge*; and if there be no rain, water the field before sowing. Previous to being planted, the seed must have been soaked in water. A man then draws furrows with a plough, and another places the seed in the furrows at the distance of four or five inches. By the next furrow it is covered. The field is then smoothed by drawing over it a plank, on one end of which a man stands, and by this means that forms a low ridge. Thus throughout the field, at the distance of six feet, which is the length of the plank, parallel rows of ridges are produced. The intermediate spaces are divided into oblong plots by forming with the hand ridges which at every eight or twelve cubits distance cross the others at right angles. At the same time the areas of the plots are exactly levelled. The waterings, after the first month, must be given once in twelve or fourteen days. In some villages the farmers weed the *jóḷa* when it is six weeks old; in others they do not take this trouble. Some people around every field of *jóḷa* plant a row of *kusumba* seeds, and the prickly nature of that plant keeps away cattle.

Bili jóḷa is sometimes sown in place of the Vais'ákha crop of rice. This must be followed by a Karttika crop of rági, as after it the produce of rice would be very small. The jóḷa also thrives best after a Karttika crop of rági. *Agara jóḷa* is also sometimes seen in place of the Vais'ákha crop on rice ground. It ripens in four months.

Save.—There are three kinds of *sáve* cultivated in the east: *hari*,

[1] The nutrient ratio of *jóḷa* is given by Professor Church as 1 : 8¼, and the nutrient value as 86. It contains, he tells us, ·86 per cent. of phosphoric acid and ·21 per cent. of potash. The following is his analysis of the grain :—

	In 100 parts	In 1 lb
Water	12·5	2 oz 0 gr
Albuminoids	9·3	1 ,, 214 ,,
Starch	72·3	11 ,, 248 ,,
Oil	2·0	0 ,, 140 ,,
Fibre	2·2	0 ,, 154 ,,
Ash	1·7	0 ,, 119 ,,

kari, and *hál* or *bili*. They are never intermixed, and the cultivation of the first kind differs from that of the other two. For *hari sáve* plough three times in the same manner as for rági. If there be any to spare, give the field dung, sow broad-cast, and harrow with the bullock-rake. In three months the grain ripens without farther trouble; when it is cut down, stacked on the field for six days, and then trodden out. It keeps best in the store-house, and is never made into flour. Cattle eat the straw without injury, but it is inferior to the straw of either rági or rice. For the other two kinds, plough three times in the course of Ashádha (June—July); then, after the first good rain, sow broad-cast, plough in the seed, and harrow. They do not necessarily require dung; but if any can be spared, they will grow the better for it. When ripe, which happens also in three months, they are managed as the other kind is. The seed and produce of all are nearly the same.

In Madgiri the best soil for sáme is considered to be the red or ash-coloured, containing a good deal of sand, which is common on high places. Without much manure, this ground does not bear constant cropping. After resting a year or more, it is first cultivated for *hurali* and next season for sáme. If manure can be procured, a crop of rági is taken, and then it has another fallow. Dung being a scarce article, in place of the rági a second crop of sáme is taken; but it is a bad one. If the fallow has been long, and high bushes have grown up, after burning these, the crop of hurali will be great, and two or three good crops of sáme will follow. When good rági soil has for a year or more been waste, and is to be brought again into cultivation, the first crop ought to be sáme; for rági thrives very ill on land that is not constantly cultivated. In this case, the sáme gives a great quantity of straw, but little grain. When the rains have failed, so that the rági has not been sown, or when, in consequence of drought, it has died, should the end of the season be favourable, a crop of sáme is taken from the fields that are usually cultivated with rági. This crop also runs to straw, and the following crop of rági requires more dung than usual. In the course of thirty days, any time between the middle of April and middle of July, plough three or four times. Then after a good rain, or one which makes the water run on the surface of the ground, harrow with the rake drawn by oxen, and sow the sáme seed with the drill, putting in with the *sudike* rows of the pulses called *hurali* or *togari*. In four months, without farther trouble, it ripens.

The sáme in Sira is of three kinds: *bili*, *kari*, and *maliga* or *mujika*. The cultivation for the three kinds is the same, but the seeds are always kept separate. The soil that agrees with them is the *maralu*, and *dare*, or poor sandy and stony lands. This soil, if it were dunged, would

every year produce a crop of sáme ; but, as that can seldom be spared, the sáme is always succeeded by a crop of hurali, which restores the ground ; and alternate crops of these grains may be continued, without any fallow, or without injury to the soil. *Biḷi sáme* ripens in $3\frac{1}{2}$ and *kari* in four months ; the *maliga* requires only three months, and is therefore preferred when the rains begin late ; but it gives little straw, and therefore in favourable seasons the others are more eligible. Sáme straw is here reckoned better fodder than that of rice ; and, when mixed with the husks of hurali or togari, is preferred even to that of rági. Except in case of necessity, jóḷa straw is never used.

Sáve in the south is never sown on the *ere* or black clay, and rarely on the *kebbe*, or red soil ; the two worst qualities of land being considered as sufficiently good for such a crop. In the spring the field is ploughed five times. At the commencement of the heavy rains it is sown broad-cast, and the seed is covered by a ploughing. Even in the worst soil, there is no absolute necessity for dung ; but when any can be spared, the crop will doubtless be benefited by manure. It ripens without further care in three months, is cut close to the ground, and gathered into stacks. Five or six days afterwards it is spread on a threshing-floor, and the grain is trampled out by oxen. That intended for sowing is dried in the sun, and tied up in straw *múdes*. The remainder is preserved in *kanajas*. It is sometimes boiled whole, like rice ; at others, ground into flour for cakes. All kinds of cattle eat the straw, which is also esteemed the best for stuffing pack-saddles.[1]

Navane.—There are two varieties cultivated in the Mysore District ; the one called *giḍḍa*, or short ; and the other *jótu*, or long : and *doḍḍa*, or great. Unless a quantity of dung can be spared, it is never sown on the two worst soils. On the two best soils it requires no manure, and does not injure the succeeding crop of rági. In the spring, plough six times. When the heavy rains commence, sow, and plough in the seed. It requires neither weeding nor hoeing, and ripens in three months. Cut it close to the ground, and stack it for eight days ; then spread it to the sun for a day, and on the next tread out the grain with oxen. The seed for sowing must be well dried in the sun, and preserved in a *múde*. The remainder is kept in a *kanaja*. It is made into flour for hiṭṭu or pudding, and is also frequently boiled whole, like rice. The straw is used for fodder, but is not good. The *jótu navaṇe* is sometimes put in drills with rági, in place of the avare or togari.

Toward Madgiri the navane is of three kinds, *bili*, which is cultivated

[1] The following analysis of the grain (with husk) is given by Professor Church :— In 100 parts there are contained, water 12·0 ; albuminoids, 8·4 ; starch, 72·5 ; oil, 3·0 ; fibre, 2·2 ; ash 1·9. The nutrient ratio is 1 : 9·5, and the nutrient value 88.

on watered land; *kempu*, which is cultivated in palm gardens; and *mobu*, which is cultivated in dry field. It is sometimes sown along with cotton, but it is also cultivated separately. It grows on both rági and jóḷa ground, and does not injure the succeeding crop of either. In the course of twenty or thirty days, any time in Jyéshtha, Ashádha, or Srávana, the third, fourth, and fifth months after the vernal equinox, plough four times. If dung can be obtained, it ought to be put on after the first ploughing. With the next rain, harrow with the rake drawn by oxen, sow broad-cast, and harrow again. The straw is reckoned next in quality to that of rági; but the grain, in the opinion of the natives, is inferior.

The navane cultivated on dry field in Sira is that called *biḷi*, and is raised either on the two poorer soils, or on a black mould that has been prepared for it by a crop of the pulse called *hesaru*. It is considered as exhausting to the ground; but this is obviated by ploughing up the field immediately after the navane has been cut, thus exposing the soil to the air. In the two months following the vernal equinox, plough four times. With the next good rain, harrow with the rake drawn by oxen, and sow the seed with the drill; putting navane in the *kurige*, and the pulse called avare in the *sudike*. In three months it ripens without farther trouble. For cattle, the straw is better than that of rice.

Baragu—is of two kinds; white and black. A sandy soil of any kind agrees with this corn, which is also valuable as requiring very little rain. The straw is better fodder than that of rice. In the second month after the vernal equinox, plough three times. After the next rain, in the following month, either sow with the drill, and harrow with the rake drawn by oxen, or sow broad-cast, and plough in the seed. In three months it ripens without farther trouble, and in a favourable season produces sixteen seeds.

There is only one kind cultivated in Kolar. After the heavy rains have ceased, plough twice, and without manure sow broad-cast, and plough in the seed. Without any farther trouble it ripens in two months and a half, is cut down close by the ground, stacked for one or two days, and then trodden out. The grain is kept in store-houses, and preserves well for two years. It is boiled entire, like rice. The straw is only used for fuel. A good crop produces twelve seeds, a middling one, eight. It requires a rich black clay.[1]

Haraka—as it is found to injure the succeeding crop of rági, is never in the south cultivated on the best soil, and rarely on that of the

[1] The following is given by Professor Church as the chemical composition of the grain:—In 100 parts there are, water, 12·0; albuminoids, 12·6; starch, 69·4; oil, 3·6; fibre, 1·0; ash 1·4. The nutrient ratio is 1 : 6, and the nutrient value 89.

second quality. It is commonly followed by a crop of horse gram, and is seldom allowed any manure. In the spring plough five times. The dung, if any be given, must be put on before the last ploughing. When the heavy rains commence, sow broad-cast, and plough in the seed: next day form drills of togari in the same manner as with rági. When the sprouts are a span high, hoe with the *kunte*, once longitudinally and once across the field. Next weed with the *ujare*. It ripens in six months; and having been cut down near the root, is stacked for six days. It is then trodden out by cattle. The seed reserved for sowing must be well dried in the sun. The remainder is preserved in the *kanaja*, but does not keep long. It is both boiled like rice, and made into flour for dressing as hiṭṭu, or pudding. The straw is eaten by every kind of cattle; but, of all the fodders used here, this is reckoned the worst.

The following is the process of cultivation in the east. At the commencement of the rains, plough three times in the course of a few days. As soon as the heavy rains begin, sow the seed broad-cast, and cover it by a third ploughing. It requires no manure, and here the pulse called togari is never sown with háraka. At the end of a month weed it with the implement called *woravári*. It requires six months to ripen, and is cut near the root, stacked on the field for five or six days, and then dried in the sun, and trodden out. The grain is commonly preserved in pits, and does not keep longer than one year. It is never made into flour. The straw is bad forage, and is used chiefly for manure. The produce in a good crop is twenty-fold; in a middling crop fifteen-fold.

Háraka at Madgiri is sown in low soft places, where, in the rainy season, water is found near the surface. The soil is of different kinds. In Vais'ákha, Jyéshtha and Ashádha, or three months following the middle of April, plough three times in the course of thirty days. After the next rain that happens, harrow with the rake drawn by oxen, sow broad-cast, and then repeat the harrowing. It ripens in six months without farther trouble. As fodder for cattle, the straw is reckoned equal to that of rági, or of hurali. The produce in a good crop is forty-fold.

Alsandi.—Of this grain there is but one kind, and it is cultivated in the south only as a *kár* crop, which is performed exactly in the same manner with that of the *kár uddu*. The green pods, and ripe grain, are both made into curries, by frying them in oil with tamarinds, turmeric, onions, capsicum, and salt. Horses eat the grain; but the straw is only useful as manure.[1]

[1] According to Professor Church 100 parts of the husked bean contain—water, 12·5 parts; albuminoids, 24·1; starch, 56·8; oil, 1·3; fibre, 1·8; and ash, 3·5, of which 1·0 consists of phosphoric acid.

Hurali or *horse-gram* is of two kinds, black and white or red; both are sown intermixed. The worst qualities of soil are those commonly used for this grain in the east; and on the same fields, sáme, háraka and huchchellu are cultivated, without one crop injuring the other, or without a rotation being considered as of the smallest benefit. For horse-gram plough twice, in the course of a few days, any time in Kártika. Then after a shower sow broad-cast; or, if none happen, steep the seed for three hours in water. Plough in the seed. It has no manure, and in three months ripens without farther trouble. Cut it down early in the morning, stack it for one day, and then dry it five days in the sun. Tread it out, and clean it with a fan. It preserves best in a store-house, but does not keep longer than one year. The forage is here reckoned inferior to rági straw. The produce in a good crop is fifteen-fold; and in a middling one ten-fold.

In the south the two varieties, the red and the black, are always sown intermixed. In the last half of Srávana, plough three times. Sow broad-cast with the first rain of Bhádrapada. It requires no manure, and the seed is covered by a fourth ploughing. In three months it ripens without farther trouble, and is then pulled up by the roots, and stacked for eight days: after which it is spread in the sun to dry, and next day is trodden out by oxen. The seed for sowing must be well dried in the sun, and preserved in *múdes*; the remainder is kept in pots, or in the *kanaja*. It is used for human food, either dressed as curry, or parched; but the chief consumption of it is for cattle, both horses and bullocks. The straw is an excellent fodder, and is preferred even to that of rági. It is generally sown on the two worst soils, in fields that are never used for anything else; but it also follows as a second crop after jóla; or, when from want of rain the crop of rági has failed, the field is ploughed up and sown with horse-gram. In this case, the next crop of rági will be very poor, unless it be allowed a great quantity of manure. In places where the red and black horse-grams are kept separate, the black kind is sown from twelve to twenty days later than the other.

The only kind cultivated towards the north-east is the white. Except after *kár ellu*, or upon new ground, it never succeeds. The longer the ground has been waste, especially if it has been overgrown with small bushes of the *tangadi*, or *bandári* (*cassia auriculata* and *dodonea viscosa*), so much the better for *hurali*. It grows best upon ash-coloured soil, and next to that prefers a red soil, in which there is much sand. In Srávana, burn the bushes; and either then, or in the course of the next month, plough once. After the next good rain sow the seed broad-cast, and plough the field across the former furrows.

The *hurali* at Sira is black and white mixed. It grows better on stony than on sandy soils; and gives the greatest crops when cultivated on land that has been waste, and over-run with bushes; but it also thrives tolerably on land that is alternately cultivated with it and sáme, or sajje. In the month which precedes and that which follows the autumnal equinox, sow the seed broad-cast, and then cover it with the plough. In four months it ripens without farther trouble. Both straw and husks are reckoned good for labouring cattle; but they are said to be bad for milch cows.[1]

Uddu—is of two kinds; *chik uddu*, and *doḍ uddu*. The *chik uddu* seems to be a variety, with black seeds. It is cultivated in Mysore District as follows:—The ploughing commences ten days after the feast *Sivarátri*, in February. Previous to the first ploughing, if there has not recently been any rain, the field must have a little water, and then it is three times ploughed. The seed is sown immediately before the third ploughing, by which it is covered. This crop obtains neither water, manure, nor weeding. The straw, when ripe, is pulled up by the roots, stacked for three days, dried two days in the sun, and then trodden out by bullocks. The flour, made into cakes, and fried in oil, is here a common article of diet. It is also mixed with rice flour, and made into white cakes called *dósé*, which are also fried in oil, and are a favourite food. The straw is reckoned pernicious to cattle. It is thrown on the dunghill, and serves to increase the quantity of manure. The grain is always preserved in the *múde*, or straw bag.

Dod uddu is also called *hain uddu*. It is cultivated and managed exactly like the other kind; but the first ploughing is on the eighth day after the *Swarna Gauri vrata*, in August. The sowing season is fifteen days afterwards. The straw is equally pernicious to cattle, but the grain is reckoned better than that of the *chik uddu*.

About Madgiri it grows best on a black soil, which it does not injure for the succeeding crop of jóḷa. Plough twice in Ashádha or Srávana, the fourth and fifth months after the vernal equinox. After the next rain sow broad-cast, and plough in the seed. In three and a

[1] The following is the result of Professor Church's analysis of horse-gram:—

	In 100 parts unhusked	In 1 lb oz	In 1 lb grs
Water	11·0 ...	1	333
Albuminoids	22·5 ...	3	262
Starch	56·0 ...	8	420
Oil	1·9 ...	0	133
Fibre	5·4 ...	0	378
Ash	3·2 ...	0	224

The nutrient ratio is 1 : 2·7, and the nutrient co-efficient 83. The ash contains nearly one-third its weight of phosphoric acid.

half months it ripens without farther trouble. The straw is only useful as fodder for camels.

Dod uddu is cultivated in the west on good rági soils, and is taken as an alternate crop with that grain. After cutting the rági the field is ploughed once a month for a year. At the last ploughing some people sow the seed broad-cast, and cover it with the plough; others drop it into the furrow after the plough. In this last case, the young plants are always too thick; and when they are a month old, part of them must be destroyed by the hoe drawn by oxen. If sown broad-cast, the weeds at the end of a month must be removed by the hand. The broad-cast sowing gives least trouble. The drill *uddu* produces a little more. It ripens in three months.

The *chiṭṭu*, or lesser *uddu*, is cultivated at the same season with the *kár rági*, and requires four months to ripen. Owing to a more luxuriant growth, even when sown broad-cast, it requires the use of the hoe drawn by oxen. It is not, however, so productive as the great uddu. Cattle eat the straw of uddu when mixed with the husks, and with those of hurali, kadale, avare, and togari, and with the spikes of rági, after these have been cleared of grain. This fodder is reckoned superior to even the straw of rági.

Hesaru.—It is of one kind only, but is cultivated in the south both as a *hain* and as a *kár* crop; in both of which the manner of cultivation is exactly the same as that of the *uddus*. The straw, being equally unfit for cattle, is reserved for manure. The grain is dressed as curry.

In the east it is commonly raised on dry field. It requires a black clay; and, although it have no manure, it does not injure the following crop of rági. In the course of a few days in Vais'ákha, plough twice, sow broad-cast, plough the seed, and harrow. In three months it ripens without farther trouble. It is then cut by the ground, stacked for six days, dried in the sun for four, and trodden out by oxen as usual. The grain, for use, is preserved in store-houses, and does not keep good more than two months, even although it be occasionally dried. The straw is totally useless, and will not even answer for manure.

The *hesaru* cultivated at Sira is called *kari*, or black, and requires a black soil, to which it is said to add much strength. It is therefore taken alternately with *navaṇe*, or with *huchcheḷḷu*, both of which are considered as exhausting crops. It is cultivated exactly in the same manner as *hurali* is, and ripens in three months. Except for feeding camels, its straw or husks are of no use.

In a few places in Shimoga where there is a moist black soil, the rice-ground produces a second crop of *kadaḷe*, and of *hesaru*. For the

hesaru, the field after the rice harvest must be ploughed twice. In the month following the shortest day, it must be watered from a reservoir, and smoothed with the implement called *koradu.* As a mark for the sower, furrows are then drawn through the whole field, at the distance of four cubits; and the seed having been sown broad-cast is covered by the plough. The field is then smoothed with the *koradu*, and in four months the crop ripens.

Wollellu—is cultivated near Seringapatam, and in some places is called *phulagana e!!u.* It is raised exactly like the *kár uddu*, cut down when ripe, and stacked for seven days. It is then exposed to the sun for three days, but at night is collected again into a heap; and, between every two days drying in the sun, it is kept a day in the heap. By this process the capsules burst of themselves, and the seed falls down on the ground. The cultivators sell the greater part of the seed to the oil-makers. This oil is here in common use with the natives, both for the table and for unction. The seed is also made into flour, which is mixed with jaggory, and formed into a variety of sweet cakes. The straw is used for fuel and for manure.

In Kolar it is more commonly called *achchellu*, and is cultivated as follows. In Vais'ákha plough twice, without manure, sow broad-cast, and plough in the seed. In three months it ripens without farther trouble, is cut down by the ground, and is afterwards managed exactly like the *uddu.* The seed is preserved in the same manner. The produce in a good crop is twenty seeds, and in a middling one twelve. The straw is used for fuel.

North of the Túmkúr District are cultivated two kinds of *sesamum*, the *karu* or *wo!!e!!u*, and the *gur-e!!u.* The last forms part of the watered crops; the kar-e!!u is cultivated on dry field. The soil best fitted for it is *dare*, or stony land, which answers also for sáme and hurali. The ground on which kar-e!!u has been cultivated will answer for the last-mentioned grain, but not so well as that which has been uncultivated. After it, even without dung, sáme thrives well. The same ground will every year produce a good crop of this *e!!u.* If a crop of e!!u is taken one year, and a crop of sáme the next, and so on successively, the crops of e!!u will be poor, but those of sáme will be good. After the first rain that happens in Vais'ákha, which begins about the middle of April, plough three times. With the next rain sow broad-cast, and plough in the seed. In between four and five months, it ripens without farther trouble. The produce in a good crop is eighty-fold.

In the west the *kar-e!!u* is sown on rági fields that consist of a red soil, and does not exhaust them. The field is ploughed as for rági,

but it is not allowed manure. The seed is mixed with sand, sown broad-cast, and harrowed with the rake drawn by oxen. It ripens in four months without farther trouble. The seed is equal to half of the rági that would be sown on the same field. The produce is about twenty seeds. The straw is burned, and the ashes are used for manure.

Huchchellu—or the *foolish-oil-plant*, is near Seringapatam most commonly sown after jóḷa as a second crop. When that has been reaped, plough four times in the course of eight days. Toward the end of Srávaṇa, or about the middle of August, after a good rain, sow broad-cast, and plough in the seed. It requires neither manure nor weeding, and ripens in three months. It is cut near the root and stacked for eight days. Then, having been for two or three days exposed to the sun, the seed is beaten out with a stick, and separated from fragments of the plant by a fan. The seed is kept in pots. Part of it is parched and made into sweetmeats with jaggory; but the greater part is sold to the oil-maker for expression. This oil is used in cookery, but is reckoned inferior to that of *woḷḷeḷḷu*. The stems are a favourite food of the camel; but are disliked by the bullock, though want often forces this animal to eat them. When not used as a second crop after jóḷa, it is always sown on the two poorer soils.

The *huchcheḷḷu* near Bangalore is managed exactly in the same manner as the *woḷḷeḷḷu* The 70 seers measure require a little more water than the other eḷḷu, and gives 65 seers of oil (or a little more than 4½ gallons). This also is used for the table. The cake is never used for curry, but is commonly given to milch cattle.

Huchcheḷḷu is never sown at Kolar as a second crop. After the male, or heavy rains are over, plough once, sow broad-cast, and plough in the seed. It gets no manure, and in three months ripens without farther trouble. It is then cut down near the root, stacked for six days, dried in the sun for three, and trodden out. The seed is preserved in store-houses; the straw is used only as manure.

In Madgiri *huchcheḷḷu* is sown in places called *javugu*, or sticking-land, which are situated at the bottom of rocks; from whence in the rainy season the water filters, and renders the soil very moist. In such places nothing else will thrive. When the rain has set in so late as to prevent the cultivation of anything else, the huchcheḷḷu is sown also on any land, especially on rági fields. On such soils, however, it does not succeed. In Bhádrapada or Asvíja (from about the middle of August till about that of October), plough once, sow broad-cast, and plough in the seed, which ripens in four months.

Haralu.—Two varieties of it are common; the *chikka*, or little haralu, cultivated in gardens; and the *dodda*, or great haralu, that is

cultivated in the fields. To grow the latter :—In the spring, plough five times before the 15th of Vais'ákha. With the first good rain that happens afterwards, draw furrows all over the field at a cubit's distance; and having put the seeds into these at a similar distance, cover them by drawing furrows close to the former. When the plants are eight inches high, hoe the intervals by drawing the *kunte* first longitudinally, and then transversely. When the plants are a cubit and a half high, give the intervals a double ploughing. The plant requires no manure, and in eight months begins to produce ripe fruit. A bunch is known to be ripe by one or two of the capsules bursting; and then all those which are ripe are collected by breaking them off with the hand. They are afterwards put into a heap or large basket; and the bunches, as they ripen, are collected once a week, till the commencement of the next rainy season, when the plant dies. Once in three weeks or a month, when the heap collected is sufficiently large, the capsules are for three or four days spread out to the sun, and then beaten with a stick to make them burst. The seed is then picked out from the husks, and either made by the family into oil for domestic use, or sold to the oil-makers. It is cultivated on the two best qualities of land, and on the better kinds of *maralu*. When the same piece of ground is reserved always for the cultivation of this plant, the succeeding crops are better than the first; when cultivated alternately with rági, it seems neither to improve nor injure the soil for that grain.

In Kolar District both the great and small kinds are cultivated; but, although the mode of cultivation is the same for both, they are always kept separate. In the beginning of the female or slight rains plough twice. When the rains become heavy, plough again; and then, at the distance of three-quarters of a cubit from each other in all directions, place the seeds in the furrows. When the plants are a span high, weed with the plough, throwing the earth up in ridges at the roots of the plants. At the end of the first and second months from the former weeding, repeat this operation. In four months it begins to give ripe fruit; and once in four days the bunches that are ripe are collected in a pit until a sufficient quantity is procured. It is then exposed to the sun, and the husks are beaten off with a stick. In the May following, the plant dries up, and is cut for fuel. It is only cultivated in the good rági soils, which it rather improves for that grain, although it gets no dung. The small kind is reckoned the best, and most productive.

Haralu is cultivated in the north-east on a particular soil, which is reserved for the purpose, and consists of ash-coloured clay mixed with sand. There are here in common use three kinds of *haralu*; the *phola* or field; and the *dodda*, and *chittu*, which are cultivated in

gardens. A red kind is also to be seen in gardens, where it is raised as an ornament. The *chit haralu* produces the best oil. Next to it is the *phola* that is cultivated in the fields. In the course of a few days, any time in the three months following the vernal equinox, plough three times. With the next rain that happens, plough again, and at the same time drop the seeds in one furrow at the distance of one cubit and a half, and then cover them with the next furrow. A month afterwards hoe with the *kunte*, so as to kill the weeds, and to throw the earth in ridges toward the roots of the plant. It ripens without farther trouble. At the time the *haralu* is planted, seeds of the pulses called avare and togari are commonly scattered through the field. In four months after this, the haralu begins to produce ripe fruit, and for three months continues in full crop. For two months more it produces small quantities.

Haralu, of the kind called *phola*, is cultivated at Sira. For this a sandy soil is reckoned best ; and as it is thought to improve the soil, the little rági that is sown on dry field generally follows it. In the first month after the vernal equinox, plough twice ; then, with the first rain in the next month, at every cubit's distance throughout the field, draw furrows intersecting each other at right angles. At every intersection drop a seed, and cover them with another furrow. After two months weed with the plough ; and with the *kunte*, or hoe drawn by oxen, throw the earth in ridges toward the young plants. In six months it begins to give ripe fruit, which for three months is gathered once a week.

Sanabu.—For the cultivation of this plant as pursued in the Bangalore District, the soil ought to be red or black, like the best kind used for cutlivation of rági. It is allowed no manure ; and the seed is sown broad-cast on the ground, without any previous cultivation, at the season when the rains become what the natives call male, that is to say, when they become heavy. After being sown, the field is ploughed twice, once lengthwise, and once across ; but receives no farther cultivation. At other times the sanabu is cultivated on rice-ground in the dry season ; but it must then be watered from a canal or reservoir. It requires four months to ripen, which is known by the seeds having come to full maturity. After being cut down, it is spread out to the sun, and dried. The seed is then beaten out by striking the pods with a stick. After this, the stems are tied up in large bundles, about two fathoms in circumference, and are preserved in stacks or under sheds.

Cotton.—The soil on which it is sown at Sira is a black clay containing nodules of limestone. In the two months following the vernal

equinox, plough three times. At any convenient time, in the two next months, mix the seed with dung, and drop it in the furrows after the plough, forming lines about nine inches apart. A month afterwards plough again between the lines; and in order to destroy the superfluous plants and weeds, use the hoe drawn by oxen three times, crossing these furrows at right angles. The second and third times that this hoe is used, it must follow the same track as at first, otherwise too many of the plants would be destroyed. Between each hoeing three or four days should intervene. In six months the cotton begins to produce ripe capsules, and continues in crop four more. The plants are then cut close to the ground; and after the next rainy season the field is ploughed twice in contrary directions. A month afterwards it is hoed once or twice with the same implement, and it produces a crop twice as great as it did in the first year. In the third year a crop of *sáme* or *navaṇe* must be taken, and in the fourth year cotton is again sown as at first.

The principal crop in the fine country towards Narsipur and Talkad is cotton, which there is never raised in soil that contains calcareous nodules. The black soil that is free from lime is divided into three qualities. The first gives annually two crops, one of jóḷa and one of cotton; the two inferior qualities produce cotton only.

Cotton is raised towards Harihar entirely on black soil, and is either sown as a crop by itself, or drilled in the rows of a navane field. In the former case, two crops of cotton cannot follow each other, but one crop of jóḷa at least must intervene. In the second month after the vernal equinox, the field is ploughed once, then manured, then hoed with the *heg kunṭe*; and the grass is kept down by occasional hoeings with the *bolu kunṭe*, until the sowing season in the month preceding the autumnal equinox. The seed is sown by a drill having only two bills, behind each of which is fixed a sharp-pointed bamboo, through which a man drops the seed; so that each drill requires the attendance of three men and two oxen. The seed, in order to allow it to run through the bamboo, is first dipped in cow-dung and water, and then mixed with some earth. Twenty days after sowing, and also on the thirty-fifth and fiftieth days, the field is hoed with the *edde kunṭe*. The crop season is during the month before and that after the vernal influence.

Tobacco is sown in Banavar in the dry field cultivated for rági and other similar grains, of which a crop must intervene between every two crops of tobacco. When the season proves very wet, it cannot be cultivated, and it requires a good rági soil. A few small stones do no harm, but it will not grow on the hard soil called *dare*; and, in fact,

the soil of the first quality is that usually employed, though sometimes the tobacco is planted on the best fields of the second quality. In the three months following the vernal equinox, the field ought, if possible, to be ploughed ten times; but some of these ploughings are often neglected. After the fourth or fifth time, sheep and cattle must for some nights be kept on the field for manure. During the last fifteen days of the second month after midsummer, small holes are made throughout the field. They are formed with the hand, and disposed in rows distant from each other 1½ cubit; and in every hole a young tobacco plant is set. This being the rainy season, the tobacco requires no watering, unless during the first ten days from its having been transplanted there should happen to be two successive fair days. In this case, on the second fair day, water must be given with a pot. On the fifteenth day a little dung is put into each hole, and the field is hoed with the *kunte*. Every fourth or fifth day, until the tobacco is cut, this is repeated, so as to keep the soil open and well pulverized. At the end of a month and a half, the top shoots of the plants are pinched off, and every eight or ten days this is repeated; so that six or seven leaves only are permitted to remain on each stem. In the month preceding the shortest day, it is fit for cutting.

The stems are cut about four or five inches from the ground, and are then split lengthwise; so that each portion has three or four leaves. These half stems are strung upon a line, which is passed through their root ends; and then for twenty days they are spread out to the sun and air. Every third day they are turned, and they must be covered with mats should there happen to be rain; but at this season that seldom comes. The tobacco is then taken into the house, put into a heap, and turned four or five times, with an interval of three days between each time. It is then fit for sale, and by the merchants is made up into bundles which include the stems.

In order to prepare the seedlings, a plot of ground must be dug in the month which precedes the longest day. It must be then cleared from stones, and separated by little banks into squares for watering, in the same manner as in this country is done to kitchen gardens. The tobacco seed is then mixed with dung, and sown in the squares, which are smoothed with the hand, sprinkled with water, and then covered with branches of the wild date. Every third day it must be watered. On the eighth day the plants come up, and then the palm branches must be removed. If the plants be wanted soon, they ought to have more dung, and to be kept clear from weeds. With this management, they are fit for transplanting in from a month to six weeks. If they are not wanted for two months, or ten weeks, the second dunging is omitted, and the

growth of the plants is checked by giving them no water for eight days after they come up.

Sasive is a mustard which is always sown, in the east, mixed with rági. It ripens sooner than that grain ; and, when dry, the branches are broken with the hand, exposed two days to the sun, and then beaten out with a stick. In this country, oil is never made from the seed, as is usual in Bengal ; it is employed as a seasoning in curries and pickles.

Kadale always requires a black mould ; and is cultivated, in the west, partly as a second crop after rági, and partly on fields that have given no other crop in the year. In this case, the produce is much greater, and the manner of cultivation is as follows:—In the two months preceding the autumnal equinox, the rági having been cut, the field is ploughed once a month for fourteen or fifteen months. Then in the course of four or five days plough twice. After the last ploughing, drop the seed in the furrows at six inches distance from each other, and it ripens without farther trouble. The seed is sown as thick as that of rági.

It is a considerable crop in the south-east of the Mysore District, but so exhausts the soil of even the richest fields that it is seldom taken from the same ground oftener than once in seven years. It is generally sown after jóḷa in place of cotton, and must be followed by wheat, woḷḷeḷḷu or rági. The two former may be followed by cotton, the rági cannot. In the third year, when rági has been used, the field is sown with navane or jóḷa, succeeded as usual by cotton. Immediately after the jóḷa has been cut, which is about the autumnal equinox, the field is ploughed once, then dunged, and then ploughed three times, all in the course of a month. In the beginning of the second month after the autumnal equinox, the kadale is sown in drills like the cotton ; but the drills are only half a cubit distant. Between the drills, on the fifteenth day, the hoe drawn by oxen is used. On the thirtieth the weeds are removed by the *kale kudagolu*. If the soil be rather hard, about the thirty-third day the hoe drawn by oxen must be again used. In four months the *kaḍale* ripens. Kadale is sometimes sown after a fallow ; in which case the ground is prepared in a similar manner as for cotton in the two poorer soils.

Towards Harihar, a few rich spots are reserved solely for the cultivation of *kaḍale*, and these are cultivated in the following manner :—In the month following the vernal equinox the field is ploughed once, then manured, and in the following month is hoed with the *heg kunte*. Between that period and the month preceding the shortest day, the grass is ploughed down twice, and the seed is sown with the sharp

bamboo following the plough, and covered with the *heg kunte.* It ripens in three months.[1]

Wheat.—There are two kinds cultivated, *jave gódhi* (*triticum monococcum*) and *hotte gódhi* (*triticum spelta*). For the former, in Kolar, the ground is sometimes ploughed five times; and sometimes dug with the hoe called *kol gudali* to the depth of one cubit, which is reckoned preferable. In Jyéshtha (May—June) the seed is sown broad-cast, and covered with the hoe. Channels and squares are then formed, and the ground is smoothed with the hand and dunged; while such of the seed as may happen to be above the ground is pushed down with the finger. In forty-five days the field must be watered nine times. It is then weeded with the instrument called *woravari*; after which one watering in six days suffices. It ripens in three months, is cut, tied up in small sheaves, and stacked for four days. It is then dried one day in the sun, and thrashed out by beating the sheaves against a log of timber. To separate the awns, the grain is then beaten with a stick. In the fields of wheat, radishes are planted on the mounds which divide the squares.

In the black clay in Madgiri, wheat of the kind called *jave godhi* is the most common crop. It is but a poor grain, and five-twelfths of it consist of husks. Any time in Pushya (Dec.—Jan.) plough once; next day, if there be no rain, water the field, and plough again across, dropping the seed in the same manner as in sowing jóḷa. The plots must be formed in the same manner. It gets no manure nor weeding, and requires only three waterings, on the fortieth, sixtieth and eightieth days. It is much subject to disease, and not above one crop in four is good. After reaping the wheat, the field, in order to expose the soil to the rain, must be immediately ploughed.

In Sira, in place of the *Vais'ákha* crop, when there is a scarcity of water, wheat, both *jave* and *hotte*, are sown on rice-lands. These grains may be followed by a *Kártika* crop of rági; but by this process the ground is as much exhausted as if it had been sown with navane. If

[1] Professor Church gives the following analysis of the composition of chick pea, or Bengal gram:—

	In 100 parts Husked	In 100 parts with husk	In 1 lb husked
Water	11·5 ...	11·2 ...	1 oz 367 grs
Albuminoids ...	21·7 ...	19·5 ...	3 ,, 207 ,,
Starch	59·0 ...	53·8 ...	9 ,, 192 ,,
Oil	4·2 ...	4·6 ...	0 ,, 294 ,,
Fibre	1·0 ...	7·8 ...	0 ,, 70 ,,
Ash	2·6 ...	3·1 ...	0 ,, 182 ,,

The ash of husked contains 1·1, and of unhusked 0·8 of phosphoric acid. The nutrient ratio of the unhusked peas is 1 : 3·3; the nutrient value 84.

the *Kártika* crop be altogether left out, the *Vais'ákha* crop of rice following wheat will be as good as if the ground had been regularly cultivated for rice alone; and in India it is a commonly received opinion, that where a supply of water admits of it, ground can never be in such good heart as when regularly cultivated by a succession of rice crops. Wheat requires a clay soil, and the manner of cultivating both kinds is the same. In the two months preceding, and the one following the autumnal equinox, plough five times. In the following month, after a rain, or after having watered the field, plough again, and drop the seed into the furrows. Then divide it into squares, as for jóḷa, and water it once a month. The straw is only used for fire. If given to cattle for fodder, it is supposed capable of producing the distemper.

A very small quantity of the wheat called *jave godhi* is raised near Periyapatna on fields of a very rich soil, from which alternate crops of *kadale* and of it are taken. The manure is given to the kadale; but wheat requires none. From the winter to the summer solstice plough once a month. Then in the following month plough twice, sow broadcast, and cover the seed with the plough. It ripens in four months without farther trouble.

The wheat raised near Narsipur in the Mysore District is of the kind called *hotte gódhi*, and there are two seasons for its cultivation, the *hain* and *kár*. It is sown on the best soil only, and always after a crop of kadale. The kár season, when the rains set in early, is always preferred, not only as the wheat is then more productive, but as in the same year it may be followed by a crop of cotton, which is not the case with the hain wheat. In the two months following the vernal equinox, the field for kár wheat is dunged, ploughed two or three times, and then hoed with the *kunte*, which is drawn by oxen. The seed is then sown, in drills one cubit distant, by dropping it in the furrow after a plough. On the fifteenth, twenty-eighth and thirty-fifth days the hoe is again used, and two or three days afterwards the weeds are removed by the *kale kudagolu*. This wheat ripens in three months and a half, and is immediately followed by a crop of cotton. The wheat is liable to be spoiled by a disease called *arsina mári*; owing to which, in the course of one day, it becomes yellow and dies.

When the rains are late in coming, the hain crop of wheat is taken after kadale. Cotton cannot be taken in the same year. The manner of cultivation is the same as for the kár crop, only the season is different. The ploughings are performed in the month which precedes the autumnal equinox, or in the beginning of that which follows. At the end of this month the seed is sown. The produce is about one-half only of that of the kár crop.

Rice.—Of the varieties of this grain 108 specimens have been collected in the Government Museum, each bearing its appropriate vernacular name. There are three modes of sowing the seed, from whence arise three kinds of cultivation. In the first mode the seed is sown dry on the fields that are to rear it to maturity: this is called the *bara batta* or *puṇaji*. In the second mode the seed is made to vegetate before it is sown; and the field when fitted to receive it is reduced to a puddle: this is called *moḷe batta*. In the third kind of cultivation the seed is sown very thick in a small plot of ground; and when it has shot up to about a foot high, the young rice is transplanted into the fields where it is to ripen: this is called *náṭi*.

The kinds of rice cultivated at Seringapatam are as follow:—*doḍḍa batta, hoṭṭe kembatti, arsina kembatti, sukadás, murarjila, yálakki raja, konavali, bili sanna batta, putta batta, kari kallu.* With the exception of the first, which takes seven months, all the other kinds ripen in five and a half months.

In the hain crop the following is the management of the dry-seed cultivation. During the months Phálguna, Chaitra and Vais'ákha, that is from February till May, plough twice a month; having, three days previous to the first ploughing in Phálguna, softened the soil by giving the field water. After the fourth ploughing the field must be manured with dung, procured either from the city or cow-house. After the fifth ploughing the fields must be watered either by rain or from the canal; and three days afterwards the seed must be sown broad-cast and then covered by the sixth ploughing. Any rain that happens to fall for the first thirty days after sowing the seed must be allowed to run off by a breach in the bank which surrounds the fields; and should much rain fall at this season, the crop is considerably injured. Should there have been no rain for the first thirty days, the field must be kept constantly inundated till the crop be ripe; but if there have been occasional showers the inundation should not commence till the forty-fifth day. Weeding and loosening the soil about the roots of the young plants with the hand, and placing them at proper distances, where sown too close or too far apart, must be performed three times; first on the forty-fifth or fiftieth day; secondly twenty days afterwards; and thirdly fifteen days after the second weeding. These periods refer to the crops that require seven months to ripen. For rice which ripens in five and a half months, the field must be inundated on the twentieth day; and the weedings are on the twentieth, thirtieth and fortieth days.

In the hain crop the following is the manner of conducting the sprouted-seed cultivation. The ploughing season occupies the month of Asháḍha (June—July). During the whole of this time the field is

inundated and is ploughed four times; while at each ploughing it is turned over twice in two different directions, which cross each other at right angles. This may be called double ploughing. About the 1st of Srávana the field is manured, immediately gets a fifth ploughing, and the mud is smoothed by the labourers' feet. All the water except one inch in depth must then be let off, and the prepared seed must be sown broad-cast. As it sinks in the mud it requires no labour to cover it. For the first twenty-four days the field must once every other day have some water, and must afterwards, until ripe, be kept constantly inundated. The weedings are on the twenty-fifth, thirty-fifth and fiftieth days. In order to prepare the seed it must be put into a pot, and kept for three days covered with water. It is then mixed with an equal quantity of rotten cow-dung, and laid on a heap in some part of the house, entirely sheltered from the wind. The heap is well covered with straw and mats; and at the end of three days the seed, having shot out sprouts about an inch in length, is found fit for sowing. This manner of cultivation is much more troublesome than that called dry-seed: and the produce from the same extent of ground is in both nearly equal; but the sprouted-seed cultivation gives time for a preceding crop of pulse on the same field, and saves a quarter of the seed.

Two distinctions are made in the manner of cultivating transplanted rice; the one called *baravági* or by *dry plants*; and the other called *nírági* or by *wet plants*. For both kinds low land is required.

The manner of raising the dry-seedlings for the hain crop is as follows:—Labour the ground at the same season, and in the same manner as for the dry-seed crop. On the 1st of Jyéshtha, or in May, give the manure, sow the seed very thick and cover it with the plough. If no rain fall before the eighth day, then water the field, and again on the twenty-second; but if there are any showers these waterings are unnecessary. From the forty-fifth till the sixtieth day the plants continue fit to be removed. In order to be able to raise them for transplanting, the field must be inundated for five days before they are plucked. The ground on which the dry-seedlings are to be ripened is ploughed four times in the course of eight weeks, commencing about the 15th of Jyéshtha; but must all the while be inundated. The manure is given before the fourth ploughing. After this, the mud having been smoothed by the feet, the seedlings are transplanted into it, and from three to five plants are stuck together into the mud at about a span distance from the other little bunches. The water is then let off for a day: afterwards the field, till the grain is ripe, is kept constantly inundated. The weedings are performed on the twentieth, thirty-fifth and forty-fifth days after transplanting.

The manner of raising the wet-seedlings for the transplanted crop in the hain season is as follows:—In the month Phálguna (Feb.—Mar.) plough the ground three times, while it is dry. On the 1st of Jyéshtha inundate the field; and in the course of fifteen days plough it four times. After the fourth ploughing smooth the mud with the feet, sow the seed very thick and sprinkle dung over it: then let off the water. On the third, sixth and ninth days water again; but the water must be let off and not allowed to stagnate on the field. After the twelfth day inundate until the seedlings be fit for transplantation, which will be on the thirtieth day from sowing. The cultivation of the field into which the seedlings are transplanted is exactly the same as that for the dry-seedlings. The plot on which the seedlings are raised produces no crop of pulse; but various kinds of these grains are sown on the fields that are to ripen the transplanted crop, and are cut down immediately before the ploughing for the rice commences. The produce of the transplanted crop is nearly equal to that of the dry-seed cultivation; and on a good soil, properly cultivated, twenty times the seed sown is an average crop.

The kár crops, according to the time of sowing, are divided into three kinds. When the farm is properly stocked, the seed is sown at the most favourable season, and the crop is then called the *Kumba kár*; but if there be a want of hands or cattle, part of the seed is sown earlier, and part later than the proper season; and then it produces from thirty to fifty per cent. less than the full crop. When sown too early the crop is called *Tula kár*; when too late it is called *Mésha kár*. The produce of the *hain* and *Kumba kár* crops is nearly the same.[1]

No Tula kár dry seed is ever sown. The ploughing season for the Kumba kár dry seed is in Bhádrapada (August), and the seed is sown about the end of Márgasira (December). In the Mésha kár dry-seed the ploughing commences on the 1st of Chaitra (March), and the seed is sown at the feast of Chitra Paurnami in April. The Tula kár sprouted seed is sown on the 1st Kártíka (October), the ploughing having commenced with the feast Navarátri, in September. The Kumba kár sprouted seed is sown in Pushya, about the 1st of January. The ploughing season occupies a month. The ploughing for the Mésha kár sprouted seed commences about the 15th of Chaitra. The seed is sown about the 16th of Vais'ákha (May). The Kumba kár transplanted rice is cultivated only as watered seedlings. The ground for the seedlings begins to be ploughed in the end of Kártika or middle of November, and the seed is sown on the 15th Pushya or end of December. The fields on which this crop is ripened are begun

[1] *Kumba* or *Kumbha* is the sign Aquarius; *Tula* is Libra; and *Mésha* is Aries.

to be ploughed in the middle of Márgasira (1st December). The transplanting takes place about the 15th of Mágha or end of January. The Tula kár transplanted rice also is sown *nírági* about the 30th of Asvíja or middle of October, and in a month afterwards is transplanted. The Mésha kár transplanted rice is also sown as watered seedlings, about the 15th of Vais'ákha (May), and about a month afterwards is transplanted. The regular kár crop of the transplanted cultivation does not interfere with a preceding crop of pulse; but this is lost, when from want of stock sufficient to cultivate it at the proper time the early or late seasons are adopted. The various modes of cultivating the rice give a great advantage to the farmer; as by dividing the labour over great part of the year fewer hands and less stock are required to cultivate the same extent of ground than if there was only one seed-time, and one harvest.

The manner of reaping and preserving all the kinds of rice is nearly the same. About a week before the corn is fit for reaping, the water is let off, that the ground may dry. The corn is cut down about four inches from the ground with a reaping-hook called *kudagolu* or *kudagu*. Without being bound up in sheaves it is put into small stacks, about twelve feet high; in which the stalks are placed outwards and the ears inwards. Here the corn remains a week, or if it rains, fourteen days. It is then spread out on a threshing-floor made smooth with clay, cow-dung and water, and is trodden out by driving bullocks over it. If there has been rain, the corn, after having been threshed, must be dried in the sun; but in dry weather this trouble is unnecessary. It is then put up in heaps called *ráshi*, which contain about 60 kandagas, or 334 bushels. The heaps are marked with clay and carefully covered with straw. A trench is then dug round it to keep off the water. For twenty or thirty days (formerly, till the division of the crop between the Government and the cultivator took place) the corn is allowed to remain in the heap.

The grain is always preserved in the husk, or, as the English in India say, in *paddy*. There are in use here various ways for keeping paddy. Some preserve it in large earthen jars that are kept in the house. Some keep it in pits called *hagevu*. In a hard stony soil they dig a narrow shaft, fifteen or sixteen cubits deep. The sides of this are then dug away so as to form a cave with a roof about two cubits thick. The floor, sides and roof are lined with straw; and the cave is then filled with paddy. These pits contain from fifteen to thirty kandagas. When the paddy is wanted to be beaten out into rice, the whole pit must at once be emptied. Other people again build *kanajas*, or store-houses, which are strongly floored with plank to keep out the

bandicoots or rats. In these store-houses there is no opening for air; but they have a row of doors one above another, for taking out the grain as it is wanted. Another manner of preserving grain is in small cylindrical stores, which the potters make of clay, and which are called *wóde*. The mouth is covered by an inverted pot; and the paddy, as wanted, is drawn out from a small hole at the bottom. Finally, others preserve their paddy in a kind of bags made of straw, and called *múde*. Of these different means the *kanaja* and *wóde* are reckoned the best. Paddy will keep two years without alteration, and four years without being unfit for use. Longer than this does not answer, as the grain becomes both unwholesome and unpalatable. No person here attempts to preserve rice any length of time; for it is known by experience to be very perishable. All the kinds of paddy are found to preserve equally well. That intended for seed must be beaten off from the straw as soon as cut down, and dried for three days in the sun, after which it is usually kept in straw bags.

There are two manners of making *paddy* into rice; one by boiling it previously to beating; and the other by beating alone. The boiling is also done in two ways. By the first is prepared the rice intended for the use of rájas, and other luxurious persons. A pot is filled with equal parts of water and paddy, which is allowed to soak all night, and in the morning is boiled for half an hour. The paddy is then spread out in the shade for fifteen days, and afterwards dried in the sun for two hours. It is then beaten, to remove the husks. Each grain is broken by this operation into four or five pieces, from whence it is called *aidu núgu akki*, or five-piece rice. When dressed, this kind of rice swells very much. It is always prepared in the families of the rájas, and is never made for sale. The operation is very liable to fail; and in that case the rice is totally lost.

Rice prepared by boiling in the common manner is called *kudupal akki*, and is destined for the use of the Sudras, or such low persons as are able to procure it. Five parts of paddy are put into a pot with one part of water, and boiled for about two hours, till it is observed that one or two of the grains have burst. It is then spread out in the sun for two hours; and this drying is repeated on the next day; after which the paddy is immediately beaten. Ten parts of paddy, by this operation, give five parts of rice, of which one part goes to the person who prepares it, for his trouble. Ten seers of paddy are therefore equal in value to only four seers of rice.

The rice used by the Brahmans, and called *hasí akki*, is never boiled. On the day before it is to be eaten, the paddy must be exposed two hours in the sun. If it were beaten immediately after

being dried, the grain would break, and there would be a considerable loss. Even with this precaution many of the grains break ; and, when these are separated from the entire rice to render it saleable, the *hasí akki* sells dearer than the *kudupal akki*, in the proportion of nine to eight.

The beating is performed chiefly by women. They sometimes, for this purpose, use the *yáta*, or a block of timber fastened to a wooden lever, which is supported on its centre. The woman raises the block by pressing with her foot on the far end of the lever, and by removing her foot allows the block to fall down on the grain. The more common way, however, of beating paddy, is by means of a wooden pestle, which is generally about four feet in length, and three inches in diameter, which is made of heavy timber, and shod with iron. The grain is put into a hole formed in a rock or stone. The pestle is first raised with the one hand, and then with the other ; which is very hard labour for the women.

The kinds of rice cultivated at Mandya are *doḍḍa batta*, *putta batta*, *hote kembatti*, *konawali*, and *mulu batta*. The first four take each five months to ripen, and the last, three. Every kind may be cultivated, either as *hain* or *kár*. The mulu batta is never sown except when there is a deficiency of water. The only cultivation here is the *mole batta*, or sprouted-seed ; the manner of preparing which is as follows : Steep the seed in water all night ; next morning mix it with cow-dung, and fresh plants of the *tumbe soppu* (*phlomis esculenta*), and put it in a *múde*. On the *múde* place a heavy stone, and on the two following days sprinkle it with water. On the third day it is fit for sowing.

For the *hain* crop, the ploughings, from about the 1st of June till the middle of July are nine in number. Dung and leaves are then put on the field, and trampled into the mud. The water is now let off, until no more than a depth of one inch remains ; afterwards, the seed is sown and a slight sprinkling of dung laid over it. A watering once in three days is then given ; and after the third time, the field is inundated till the grain ripens. The weeds are removed on the twentieth, fortieth and sixtieth days. The kár cultivation is exactly the same, only the ploughings are in November and December. In both kinds of cultivation, and in every species of rice, an equal quantity of seed is sown on the same extent of ground, and the produce is nearly equal.

Of the different kinds of rice cultivated at Maddur *arisina kembatti*, *puṭṭa batta*, *yálakki rája*, *sukadas*, *konavali*, and *murarjila*, are equal in produce. The first four ripen in $4\frac{1}{2}$ months, the next in five, and

the last in six. The produce on first quality of soil is 114 seeds, on second quality 100 seeds, and on third, half that quantity. *Hote kembatti* and *dodda* or *bili batta*, which ripen in five months, produce 100, 70 or 40 fold, according to quality of soil. All the kinds of rice may be raised either as hain or kár crops, or the moḷe or náti modes of cultivation. No *punaji* is ever attempted. The seedlings for transplantation, in the náti cultivation, are always raised as nírági. The produce of the same kind of rice in the same soil, whether cultivated as hain or kár, or as moḷe or náti, is nearly the same.

The seasons for cultivating rice in the Kolar District are two; and the two crops, from the months in which they ripen, are named the *Kártika* and *Vais'ákha*. In this neigbourhood no rice is transplanted. When the seed is sown dry, the cultivation is called *puledi*; when it is prepared by being sprouted, it is called *moḷe*.

The only kind of rice cultivated as *puledi*, or dry seed, is the *dodda baira*; and it is only sown in this manner for the Kártíka crop. In the course of Vais'ákha and Jyéshtha plough the ground without water four times. About the end of the latter month (June), after a day's rain, sow the seed broad-cast, and cover it with the plough. Then harrow the field with the implement called *halive*. The crop has no manure, and the field is not inundated till the end of the second month; when it must be harrowed again, and the weeds removed by the hand. A good crop of this is reckoned fifteen seeds, a middling one ten seeds.

The *moḷe* for the Kártíka crop is cultivated as follows: In Ashádha, and the first half of Srávana, plough from seven to nine times, the field being always inundated. Then manure it, either with leaves or dung; both are rarely given: but, could they be procured, this would greatly increase the produce. Then let out all the water, except two inches in depth, and sow the prepared seed broad-cast. Next day the field is dried, and sprinkled with some dung. At the end of three days it is covered with water for four hours. On the seventh, water the field for a whole day. After the tenth day, it must be kept constantly inundated to the depth of two inches. At the end of the month harrow it once lengthwise; on the third day harrow it across; and on the fifth day harrow again lengthwise. Four days afterwards weed with the hand, and repeat this after an interval of two weeks.

All kinds of rice are cultivated in the same manner. The rice for seed, after being trodden out, must be dried three or four days in the sun; and may be kept either in a straw *múde*, or in a store called *kaṇaja*. When it is to be prepared, it must be dried one day in the sun; then soaked a night in water; the next morning it must be mixed

with *haraḷu* leaves and dung, and tied up in straw. This is dipped in water, and placed under a large stone. In two days it must again be dipped, and is then fit for sowing. The produce of the doḍḍa baira, which is the common coarse grain of the country, is the greatest. A good crop of this is said to be fifteen seeds, and middling crop about ten seeds. The other kinds, on the same extent of ground, produce eight or ten seers less.

The *moḷe* cultivation for the Vais'ákha crop is as follows: Having inundated the field, plough it five or six days during the course of the twenty days preceding the feast Dipávaḷi. In the course of the next month plough four times. Then let out all the water, except two inches in depth; manure with leaves; and, having trodden these well into the mud, sow the prepared seed broad-cast. Next day dry the field, and manure it with duug. Three days after, water for two hours. Then every second day, for three times, water for four or five hours. Afterwards keep the field inundated. At the end of the month harrow, with the *halive*, three times in three directions, with a day's rest between each harrowing. A week afterwards weed with the hand, and in two weeks repeat this operation. This is the most productive crop, and gives from one to two seeds more than that which is reaped in Kártíka.

The mode of cultivation, or the season of sowing, makes no difference here in the quality of the grain, nor in the length of time that it will keep good. The grain is always preserved in the husk; and until wanted for immediate consumption, is never beaten. In store-houses, or *kanajas*, if well dried in the sun previous to its having been put up, it preserves well for two years. Paddy is sometimes kept in pits, or in the straw packages called *múḍes*; but these are inferior to the store-house.

At Madgiri, when there is plenty of water, the same ground in the course of the year gives two crops, the *Kártíka* and *Vais'ákha*. The former, provided two crops are taken, is the most productive; but, if the Kártíka be omitted, the Vais'ákha gives a greater return than the Kártíka alone would have given; not, however, equal to the produce of both crops. The quality of the grain in both crops is the same. The Vais'ákha crop, although raised in the dry season, is the one most regularly taken. For this crop all the kinds of rice may be sown; for the Kártíka crop the *bili sanna batta* and *kari channangi* are never sown; as with rain they are apt to lodge. The soil used for *tripati sanna batta*, *bili channangi*, *kari channangi*, and *put raj*, is *maralu* or sandy. The others require a clay, which in the low grounds is always black. The red soil is always confined to the rising grounds, and is

therefore never cultivated for rice, except when it can be watered by machines; and if the water is more than $31\frac{1}{2}$ feet from the surface, these are never used. Two men and four oxen can, by means of the machine called *kapile*, supply an acre and a half of ground with water sufficient to raise a crop of rice. One set works four or five hours in the morning, and the other as much in the evening.

The only manner of cultivating rice that is in use here is the *mole*, or sprouted-seed ; the manner of preparing which is as follows :—The ears must be cut off, the grain beaten out immediately, and then dried in the sun three or four days. It must be preserved in straw or in jars. When wanted for sowing, it must be exposed to the sun for a day, and soaked in water all the following night. It is then put upon a layer of the leaves of the *yekka* (*calotropis gigantea*), or of *haraḷu*, mixed with sheep's dung, and is surrounded by stones, so as to keep it together. It is then covered with *bandári* (*dodonæa viscosa*) leaves, and pressed down with a stone. Next morning the upper leaves are removed, and a pot of water is thrown on the seed, which must be turned with the hand, and then covered again with the leaves and stone. Daily, for three or four times, this operation must be repeated, and then the sprouts from the seed will be almost an inch long.

For the *Kártíka* crop plough seven times in the course of thirty days, the ground all the while being inundated. In the next place manure the ground with leaves, and tread them into the mud. Then let off the water, and sow the seed broad-cast, covering it with a little dung. On the fourth day cover the ground with water, and immediately afterwards let it run off. Repeat this daily till the eighth time, after which the field must be kept constantly inundated to the depth of one inch for ten days, and four inches for the remainder. The weedings are at the end of the sixth, tenth, and twelfth weeks from sowing. The season for ploughing continues all the months of Jyéshtha and Ashádha.

For the *Vais'ákha* crop the same process is followed; but the ploughing season is from the 15th of Asvíja till the last of Margasira. By this time the whole seed must be sown; and the nearer it is done to it the better.

The large-grained rices, *doḍḍa batta*, which ripens in $4\frac{1}{2}$ months, and *kari channangi* and *bili channangi*, which ripen in four months, produce in a good crop twenty-fold, and in an indifferent crop one-fifth less. *Kembatti* or *doḍḍa kembatti*, and *garuda* or *sanna kembatti* yield twenty-three and thirteen-fold respectively in a good crop, or fifteen and seven-fold in an inferior one. The first ripens in five months, the second in four. Of the small-grained rices, *bili sanna batta*, *kari sanna*

batta, *put raj* and *tripati sanna batta*, the first ripens in five months, the second in five and a half, the third in four, and the fourth in three and a half. Their respective yield in a good crop is twenty-four, thirty-two, fifteen and seventeen-fold.

In Periyapatna and the west the principal cultivation is the transplanted or *náti*, and by far the greatest quantity of rice cultivated is the *hain* crop or *anaputti*. The other kinds raised are *kembatti*, *konavali*, *sanna batta*, *sanna kembatta*, and *káru*; all ripen in six months, except the last, which ripens in five. The following is the manner of cultivating the *hain náti* or crop of transplanted rice growing in the rainy season :—The ground on which the seedlings are to be raised gets seven or eight ploughings between the middle of Vais'ákha and the 10th of Jyéshtha, which are the second and third months after the vernal equinox. In the intervals between the ploughings the field is inundated; but at each time that operation is performed, the water is let off. After the last ploughing, manure with the leaves of the *chandra mallige* (*mirabilis*) or *ummatte* (*datura stramonium*); but, if these cannot be had, with the leaves of the *chaudangi* (*solanum*). Then tread the leaves into the mud, sow the seed very thick and cover it with dung. The seed is in general prepared for sowing by causing it to sprout: and the reason assigned for so doing is, that it is thereby secured from the birds. If the seed has been prepared, or *moḷe*, the field has water during the third, sixth, and ninth days, the water being allowed to remain on the field all day, and being again let off at night. On the tenth day the field is filled with water an inch deep and is kept so till the eighteenth, when that water is let off. Immediately afterwards the field is filled to three inches deep, and is kept thus inundated until the seedlings be fit for transplantation. If the seed be sown dry, it receives water on the first, second, and third days. On the fourth it has the manure which is given to the *moḷe*, when that is sown. It receives water again on the seventh, which is let off on the ninth. Water is again given on the thirteenth, seventeenth, and twenty-first; and the field is then inundated, until the seedlings are fit for transplantation. They must be transplanted between the thirtieth and forty-sixth days.

The ploughings for the fields into which the seedlings are to be transplanted are performed during the time in which these are growing; and are done exactly in the same manner as for the field in which the seed has been sown. Stiff ground requires eight ploughings; in a light soil six are sufficient. The manure is given before the last ploughing. The seedlings are pulled in the evening, and kept in water all night. Next morning the field has the last ploughing, and the mud is smoothed

by having a plank drawn over it. The seedlings are then planted, and get no water until the eighth day. On the eighth, twelfth, sixteenth and twentieth days the water is kept on the field, and is let off at night. The yellow colour occasioned by the transplantation is then changed into a deep green; after which, until the crop ripens, the field is constantly inundated. In a bad soil, the weeds are removed on the thirtieth day, in a good soil, on the forty-fifth.

The farmers here make their sprouted-seed in the following manner: The seed is soaked all night in water, and is then placed in a heap on a piece of sackcloth, or on some leaves of the plaintain-tree. There it is mixed with some buffalo's dung, and the leaves of the *burike* (*ocymum molle*), and covered with pack-saddles. In the evening it is sprinkled with warm water, and covered again. In the morning and evening of the second day it is sprinkled with cold water, and next day it is fit for sowing.

Every kind of rice that is sown in Nagar takes six months to grow; and they are of less variety than usual, namely, *biḷi batta* or *heggai*, and *jolaghena*, which may be cultivated both as dry-seed and as transplanted; and *honasena*, or *kempu*, which can be sown only as dry-seed.

The *bara-batta* cultivation is conducted as follows:—In the course of the five months following the winter solstice, the field gets four single ploughings. In the second month after the vernal equinox, it is manured with leaf-dung, and ploughed once. After the next rain, the seed is mixed with dry cow-dung, sown broad-cast, and covered by the implement called *koradu*. A month after sowing, when the young rice is about four inches high, the field is turned over with a small plough, to kill the grass and to destroy part of the young corn, which is always sown too thick. After this, the field is again smoothed with the same implement, and harrowed with a bunch of thorns. In the second month after the summer solstice, all the banks are repaired, to retain the water on the fields, which are then ploughed again and smoothed with the implement called *aligina koradu*. A large rake, called *halaku*, is then drawn by the hand over the field, to remove the weeds. In the month preceding the autumnal equinox, the weeds are removed by the hand. In the two months preceding the shortest day, the crop is ripe. It is cut close by the ground, and for four days is allowed to lie loose on the field. It is then stacked in heaps, with the ears inward, but without having been bound up in sheaves. In the course of three months, it is trampled out by oxen. The grain with the husk is preserved in store-houses, or straw bags, and is only made into rice as it may be wanted for immediate use.

The process for transplanted rice, called here *nitti*, is as follows:—

In order to raise the seedlings, in the course of fifteen or twenty days during the month following the vernal equinox, a plot is inundated, and ploughed four times. It is then manured with any kind of fresh leaves, and with the dung made by cattle that have been littered with dried leaves. These are ploughed down, and the mud is smoothed, first with the *noli*, and afterwards by the *mara*, which is a square log of timber yoked in the same manner. The field is then drained so that three inches of water only remain. In any of the three months between the vernal equinox and the summer solstice, the seed is sown broad-cast. As this is the dry season, the seedling plot must be very low, so as to receive a supply of water from some rivulet. On the fifth day after the seed has been sown, the whole water is allowed to drain from the plot; and for three days this is kept dry, after which it is constantly inundated, till the seedlings are fit for transplantation. The field into which they are to be removed is inundated during the two months following the summer solstice, and in the course of three days during that period ploughed four times. It is then manured, in the same manner as the plot was; and afterwards, in the course of two or three days, it is ploughed again three times. The mud is then smoothed with the *noli*, above mentioned; and the water having been let off to the depth of three inches, the seedlings are transplanted into the field, which must be always kept under water; and a month after it has been planted, the weeds must be removed by the hand. The harvest is in the month preceding the winter solstice.

All the fields are capable of both modes of cultivation. The transplanting is reckoned most troublesome and least productive, and requires most seed. A kandaga of land is an extent that in the transplanting cultivation requires one kandaga of seed; in dry-seed cultivation, it requires only fifteen kolagas. The produce of all the three kinds of rice is nearly the same, only the *heggai* gives rather most. Of this grain a kandaga of land of the first quality, cultivated by transplanting, produces eleven or twelve kandagas; land of the second quality produces eight kandagas; and land of the third quality produces six kandagas. The same ground, cultivated with dry-seed, would produce from half a kandaga to one kandaga more.

The kinds of rice cultivated at Shimoga are *sampige dála*, *beṭṭa kendál*, *kembatti* and *sanabatti*, producing in a good crop ten, twelve and nine-fold respectively, the last two being equal. All these require six months to grow. They are all large-grained, except the *sanabatti*, which sells five per cent higher than the others. The lowest ground is used for the *sanabatti*, the highest for the *kembatti*.

The cultivation of all soils and all kinds of rice here is the same, and

the unprepared seed is sown by a drill. Immediately after harvest, the ground is once ploughed. When the rains commence during the two months following the vernal equinox, it is ploughed again twice, smoothed with the implement called *koradu*, and then hoed twice with the *heg kunte*, which is drawn by two oxen. This removes the grass; after which the clods are broken by drawing the *koradu* twice over the field, which in some measure serves as a rolling-stone. The dung is then spread; and after the first good rain the seed is sown with the drill or *kúrige*, and covered with the *koradu*. At this season the rain comes in showers, between which are considerable intervals. On the third day after having been sown, the field is hoed with the *heg kunte*, which here is called also *kambutige*. On the twentieth day, when the seedlings are nine inches high, the *koradu* is used again; then the *edde kunte*; then the *koradu*, and finally the harrow, which is made of a bunch of thorny bamboos. On the thirtieth day, more grass having sprung, the *edde kunte* is again used, the rows of young corn passing between the hoes; and this must be repeated as often as the grass springs. In the third month the water is confined, and then for the last time the *edde kunte* must be used. The mud raised by this is smoothed by the *koradu*; but in this operation the same implement is called *aravasi*. All these weedings are not sufficient, and the remaining grass must be removed by the hand and weeding-iron. The rice is cut with the straw, and for two days is allowed to lie loose on the field. It is then put in ricks, without having been bound in sheaves, and remains there until trodden, which may be done any time in the course of three months. It is always preserved in the husk, and when wanted for consumption is cleaned by a hand-mill of the usual form, but made entirely of timber, which removes the outer husk; but the inner one, or bran, must be separated by beating in a mortar. Eight measures of clean rice, as usual in India, are equal in value to twenty of that which retains the husk.

South of the Chitaldroog District, all the rice ground is cultivated as sprouted-seed. The seed is sown equally thick, yet in Budihal the land often produces sixty-fold, and the ordinary crop is forty seeds; while towards Garudagiri, the usual produce is twenty seeds. In the course of one year there are frequently from the same field two crops of rice.

The kinds of rice cultivated at Belur are *hasude*, *bola mallige*, *bili sanna batta*, *kérivanna* and *putta batta*, which ripen in eight months; and *chípiga*, *kesarí*, *kumbara kesarí*, *kempu sanna batta*, and *modara*, which ripen in seven months. On *nirávari* land, or that which has a supply of water from tanks, the rices most commonly cultivated are

kirivanna and *hasude*. All the three kinds of cultivation are in use; but in ordinary seasons the dry seed is by far the most prevalent. In extraordinary wet seasons a good deal is transplanted, and some is sown sprouted.

The cultivation of the dry-seed is conducted as follows:—In the month following the winter solstice, the ploughing commences, and in the course of two months the operation is eight times repeated. The little banks, inclosing the plots for confining the water, are then repaired, and the field is manured. In the month preceding the vernal equinox, after a shower of rain, the clods are smoothed with the *ada*, or *gidde mara*, which is the same implement which at Nagar is called *noli*. Eight days afterwards, the field is again ploughed and again smoothed with the *ada*. The seed is sown by the drill, according as the rainy season commences, during the two months and a half which follow the vernal equinox. It is then covered by the *ada*. On the twenty-third day after having been sown, the field is hoed with the *edde kunte*, and this is repeated twice, with an interval of four days between each time. The field is then inundated by confining the water, and the *kunte* is drawn a fourth time in the mud. On the day following, the soil is smoothed with the *ada*. Eight days afterwards, the field is drained until the weeds can be removed by the hand. After a month or six weeks, this must be repeated. The rice is cut with the straw, and trodden out by oxen.

When the rains are heavy, a good deal of rice is raised by transplantation. For every kandaga land, two kandagas of seed must be sown; and the produce of this, on the best land, is only twenty-one or twenty-two kandagas. Very little sprouted-seed is sown; but it seems to be the cultivation that would answer best. For a kandaga land fifteen kolagas of seed are sufficient, and the produce is little less than in the dry-seed. On the *makke* land, or that which depends entirely on rain for a supply of water, the seed is always sown without preparation, and managed exactly in the same manner as on the nirávari. The produce on the best land is twenty-two kandagas, from thirty kolagas sown on a kandaga field.

Sugar-cane.—A considerable quantity of sugar-cane is cultivated near Seringapatam. It is of two kinds, *rastáli* and *paṭṭápaṭṭi*.[1] Both yield *bella* or *jaggory*; but the natives can extract sugar from the paṭṭápaṭṭi alone. The jaggory of the latter is also reckoned the best. The rastáli can be planted only in Chaitra; the paṭṭápaṭṭi may also be planted in Srávana or Mágha. The crop of rastáli is over in a year; that of

[1] *Rastáli* is the original sugar-cane of the country; *paṭṭápaṭṭi* was introduced, it is said, from Arcot, in the time of Haidar, by Mustafa Ali Khan, a paymaster-general.

paṭṭápaṭṭi requires fourteen months, but may be followed by a second crop, or, as is said in the West Indies, by a crop of *ratoons*, which require twelve months only to ripen. The rastáli will not survive for a second crop.

When the ground is to be cultivated for sugar-cane, it is watered three days, and then for the same length of time it is allowed to dry. During the next eight days it must be ploughed five times, and the clods must be beaten small with a kind of pick-axe, called *kol gudali*. The field must then be manured, and ploughed a sixth time. The ground now rests fifteen days; after which, in the course of one or two days, it must be ploughed twice, and then be allowed eight days more rest. It is afterwards ploughed a ninth time. These operations occupy forty-four days; six more are employed in planting the cane, which is done by the instrument called *yale gudali*. With this the field is divided into beds of about six cubits wide. These beds are separated by small trenches, which are about fourteen inches wide, and eight deep. In every alternate trench are dug small wells about two feet deep. The water from the canal flows through all the trenches, and, a quantity of it lodging in these wells, is taken out with pots for watering the plants by the hand. Across every bed, at the distance of a cubit, are dug five holes, about six inches in diameter and three in depth. In each of these are placed horizontally two cuttings of the cane, each containing three joints. These are covered slightly with earth, over which is laid some dung. When the cane is planted in Chaitra, the trenches must be filled with water from the tank, and every hole must be watered by pots. At the other seasons the trenches are full, it being the rainy weather; but, even then, for one month, the holes containing the canes must daily be watered by the hand. The earth in the holes is then stirred up with a stick, and a little dung is added. Next month the daily watering must be continued, and at the end of it the whole field must be dug up with the *yale gudali*; and round every cluster of young canes there must be formed by the hand a small cavity, into which a little dung is to be put. In the third month the canes must be watered every other day. At the end of the third month, if the canes have grown with luxuriance, the field must be dug over again with the *yale gudali*; but, if they are rather stunted, the watering must be continued all the fourth month, before they get the third weeding. At this time, the earth at the roots of the cane is heaped up into ridges, crossing the beds at right angles to the trenches. Afterwards, no water is given immediately to the plants; but for three days the trenches must be kept full. It is then let out for a week. If there be rain, there is no occasion for more watering; but, if it be dry weather, the trenches, for a month, must be

filled with water one day in the week. Then the weeding with the *yale gudali* must be repeated, and the earth must be smoothed with the hand, and placed carefully round the canes. The young shoots from each hole will be now ten or twelve in number; those which are sickly must be cut off; and the healthy, which are about a cubit long, must be tied up with a leaf of the plant into bundles of two or three, in order to prevent them from spreading too much. Should there be no rain, the trenches must once in fifteen days be filled with water, till the canes, having grown higher, again require to be tied together. In a month after the first tying they ought to be two cubits high. When the plants are eight months old they will have grown another cubit, and will require another tying. The farmer now begins to repair his apparatus for making jaggory: the *ále mane*, or boiling-house; the *gána*, or mill; the *kopparige*, or boiler; the *achchu*, or mould; the *kunu*, or cooler; the *gormaṉe*, or ladle; and the *chibalu*, or skimmer. In the eleventh month he begins to cut the rastáli, and the crop must be finished within the year. The paṭṭápaṭṭi is ripe in twelve months, and two months may be allowed for cutting it.

If it be intended to keep the field of paṭṭápaṭṭi for a second year's crop, the dry leaves which are cut off at crop season must be burned on the spot, and the whole field must be dug with the *yale gudali*. The trenches must then be filled with water, and for six months the watering must be continued once in eight or ten days, unless there be rain. The weedings during this time ought to be three; at each of which dung ought to be given. At the end of six months, the canes having grown one cubit high, the weakly plants must be removed, and the strongest tied up, as in the first crop. The manner of conducting the two crops after this is quite similar. The canes of the second crop must be all cut within the year.

The kinds of sugar-cane cultivated in Kolar are four, which are esteemed in the following order: first *rastáli*, second *paṭṭápaṭṭi*, third *mara kabbu*, fourth *kaṭṭe kabbu*. The two last are very small, seldom exceeding the thickness of the little finger; yet the kaṭṭe kabbu is the one most commonly cultivated. This is owing to its requiring little water; for by means of the *yáta* it may have a supply sufficient to bring it to maturity. From the end of Phálguna to the end of Chaitra (Mar.—April) plough eight or ten times. Manure the field with dung, and plough it again. Then spread leaves on it, and cover them with the plough. By the small channels that are to convey the water, the field is then divided into beds eight cubits broad. Furrows are then drawn across the beds at the distance of nine inches from each other. The cuttings of cane, each containing four or five eyes, are then placed

lengthwise in the furrows, the end of the one touching that of the other. They are covered with a very little earth, over which is laid some dung. They are then watered, the water flowing through every channel, and entering every furrow. For one month the watering is repeated once in three days: the earth round the canes must then be loosened with the point of a sharp stick. For fifteen days more the watering must be continued; when the whole field should be hoed, and levelled with the *kól gudali.* Four days afterwards, between every second row of sugar-cane a trench is dug, and into this the water flows from the channels. Thus in the progress of its cultivation each bed assumes two forms. When there is no rain, the field requires to be watered once in fifteen days. When four or five months old, the canes are tied up in bundles; and when they are a cubit and a half high this is repeated. In eleven months they are ripe, and a month and a half are allowed for the crop season. The soil here used for sugar-cane is the rich black soil called *ere*; and after sugar it requires one or two years' rest before it gives a good crop of rice. The sugar-cane is all made into jaggory; seventy-four seers measure, or nearly eighteen ale-gallons of juice, are said to produce fifty kachcha seers weight (about 26½ lb. avoirdupois) of the jaggory.

The sugar-cane field at Madgiri is divided into two equal portions, which are cultivated alternately, one year with sugar-cane, and the other with grain; the cane, however, thrives better when the field, in place of being cultivated for grain, is allowed an intermediate fallow; but then the loss is heavy, as after cane the grain thrives remarkably. The grains cultivated are rice, rági, and jóḷa; the first injures the cane least, and the jóḷa injures it most. The kinds of cane cultivated are the rastáli and mara kabbu. In Kártika and Márgasira (Oct.—Dec.) plough seven times, and manure with sheep's dung and leaves. Then with the hoe called *yale gudali* form channels at a cubit's distance. In these also, at a cubit's distance, plant single shoots of the cane, each about a cubit in length. If the soil be poor, they must be planted rather nearer They are laid down in the channels, which are filled with water, and then people tread the shoots into the mud, by walking through each channel. A *kolaga* of land requires 18,000 shoots, on which data it ought to contain 1·8 acre. If the soil be of a moist nature, the cane has water once in eight days; but, if it dry quickly, it must, until ripe, be watered once in six days, except when there is rain. At the end of the first month the field must be hoed with the *kali kudali.* Near each cane, as a manure, some leaves of the *honge* are then placed, and they are covered with a little mud; so that the channels are now between the rows of cane, and the canes grow on the ridges. When these are 2½

cubits high, they are tied up in bunches of three or four; and as they grow higher, this is three or four times repeated. Twelve months after planting, the crop season begins; and in six weeks it must be finished: 250 maunds of jaggory is here reckoned a good crop from a kolaga of land, which is very nearly 15 cwt. an acre; 150 maunds, which is about 9 cwt. from the acre, is reckoned a bad crop. Black clay gives the greatest quantity of jaggory, but it is of a bad quality. A sandy soil produces least jaggory, but that of a high value. One *kapile* can water an acre and a half of sugar-cane land.

The ground for cultivating sugar-cane in Sira is also divided into two equal parts, which are alternately cultivated; one year with cane, and the other with rice. It is watered either from the reservoirs, or by the *kapile*. In the last case, a field of two *kolagas*, or three acres, one-half of which is in sugar-cane, and the other in rice, requires the constant labour of four men and eight oxen. Day-labourers must also be hired to rebuild the boiling-house, to tie up the cane, and to weed. When the field is watered from a reservoir, one man only is regularly employed; but to plough, to plant, to weed and to tie up the cane, both men and cattle must be hired in addition. Three kinds of cane are here cultivated. The most valued is the *rastáli*, which grows best on a black soil in which there is much sand or gravel; a good crop of this, on a *kolaga* land, produces 100 maunds of jaggory; which is about $29\frac{1}{2}$ cwt. on an acre. The next in quality is the *kari kabbu*, or black cane. It requires a pure black mould, called *ere bhúmi*; and, in a good crop, produces, from a *kolaga* land, sixty maunds of jaggory, or from an acre nearly $17\frac{1}{2}$ cwt. The poorest cane is the *mara kabbu*, or stick cane. It is cultivated on the same kind of soil with the rastáli; but produces only half as much jaggory as the kari kabbu, and that of a very bad quality, for it is quite black.

The cultivation of the rastáli, however, is comparatively much more troublesome. In the course of the eight months following the summer solstice, the field must be ploughed eleven times; and once a month, during the whole of that time, 1,000 sheep must be folded for one night on the field. It is then manured with mud from the bottoms of the reservoirs, and ploughed again twice. The channels are then formed, and in them the cuttings are laid down, two and two being always placed parallel. A *kolaga* of land requires 50,000. The channels are then filled with water, and the cuttings are trodden into the mud with the feet. The second watering is on the fourth day, the third watering on the twelfth; afterwards the field, if the soil be good, must be watered once a fortnight; or once a week, if it part with its moisture quickly. On the twentieth day the field is weeded with the small hoe

called *molu potu*, which implies that the operation is done very superficially. On the thirty-fifth day the whole field is dug with the large hoe called *yale gudali*; and, the earth being thrown up toward the canes in ridges, the channels for conveying the water run between the rows. About the ninetieth day the canes are tied up with a leaf of the plant in parcels of five or six, and once a month this is repeated. When the cane is ten months old, the crop begins, and in thirty days it must be finished.

Towards Periyapatna, the cane is watered from reservoirs; the natural moisture of the climate not being sufficient to raise it, and machinery being never employed. The kinds cultivated, besides a little paṭṭápaṭṭi, are rastáli and mara kabbu, both of which grow nearly to the same length, which is in general about six feet. The rastáli ripens in twelve months, while eighteen are required to bring forward the mara kabbu; so that as a crop of rice must always intervene between two crops of sugar-cane, the rotation of the former occupies two years, while in that of the latter three are consumed.

For the mara kabbu plough twenty times either in Asvíja and Kártika, the two months immediately following the autumnal equinox; or in Kártika and Márgasira, which is of course one month later. The canes are planted in the second or third months after the winter solstice. In order to plant the cane, longitudinal and transverse furrows are drawn throughout the field, distant from each other one cubit and a half; at every intersection a hole is made, nine inches wide, and of the same depth; in each hole are laid horizontally two cuttings of cane, each containing three joints; finally under them is put a little dung, above them an inch of mould. Then water each hole with a pot, from a channel running at the upper end of the field. On the two following days this must be repeated. Until the end of the third month, water every other day. From the third to the sixth month, the field must, once in eight days, be ploughed between the rows of holes; and at the same time, should there be any want of the usual rain, it must be watered. At the first ploughing a little dung must be given, and at the end of six months the field must be copiously manured. At this time channels are formed winding through among the canes; so that every row is between two channels. When the rainy season is over, these channels must be filled with water, once in eight days in hot weather, and once a month when it is cool. At the beginning of the eighth month the whole field is hoed, and at the end of two months more this is repeated. The cane here is never tied up.

The sugar-cane cultivated in Nagar is the *mara kabbu*. The ground

fit for it is that which has a supply of water in the dry season. Any soil will do, but a red earth is reckoned the best. In the month preceding the vernal equinox plough four times ; and then throughout the field, at the distance of one cubit and a half, form with the hoe trenches one cubit wide, and one span deep. Then cover the field with straw, dry grass, and leaves, and burn them to serve as a manure. The soil in the bottom of the trenches is afterwards loosened with a hoe ; and a man, with his hand, opens up the loose earth, puts in a little dung, and upon this places horizontally, and parallel to the sides of the trench, cuttings of the cane, each containing four or five joints. These he covers with a little dung and earth. The cuttings are placed in one row in each bed, the end of the one being close to that of another. Once a day, for a month, the canes must be watered with a pot ; the young plants are then about a cubit high ; and, the earth round them having been previously loosened with a sharp-pointed stick, a little dung should be given to their roots. After this, the ridges are thrown down, and the earth is collected toward the rows of young cane, which by this means are placed on ridges, with a trench intervening between every two rows. Until the rains commence, these trenches must every other day be filled with water. In the month preceding the autumnal equinox, in order to prevent them from being eaten by the jackals and bandicoots, the canes are tied up in bundles of from five to ten, and each of these is surrounded by a series of straw rope. In ten months they are fit for cutting, and require no farther trouble. The crop season lasts one month. On the second year a crop of ratoons is taken, in the third year the roots are dug up, and the field is again planted with cane ; so that it is never reinvigorated by a succession of crops.

Sugar-cane is at Harihar the most considerable irrigated crop. In the intervals between the crops of cane, a crop of rice is taken, should there be a sufficient supply of water ; but that is seldom the case, and the intermediate crop is commonly some of the dry grains. The cane may be planted at any time ; but there are only three seasons which are usually employed. One lasts during the month before and month after the summer solstice. This is the most productive and most usual season ; but the cane requires at this time longer to grow, and more labour, than in the others. The other two seasons are the second month after the autumnal equinox, and the second month after the shortest day. Those crops arrive at maturity within the year.

The kind of cane cultivated is the *mara kabbu*, and the following is the process in the first season :—In the second month after the

vernal equinox, the field must be watered, and eight days afterwards it is ploughed once. After another rest of eight days, it must be ploughed again with a deeper furrow, four oxen having been put into the yoke. After another interval of eight days it is ploughed, first lengthwise, and then across, with a team of six oxen. Then, at the distance of three, or three and a half cubits, are drawn over the whole field, furrows which cross each other at right angles. In order to make these furrows wider, a stick is put across the iron of the plough. In the planting season, two cuttings of the cane, each containing two eyes, are laid down in every intersection of the furrows, and are covered slightly with mud. The furrows are then filled with water, and this is repeated three times, with an interval of eight days between every two waterings. A little dung is then put into the furrows; and when there happens to be no rain, the waterings once in the eight days are continued for three months. When the canes have been planted forty days, the weeds must be removed with a knife, and the intervals are hoed with the hoe drawn by oxen. This operation is repeated on the fifty-fifth, seventieth, and eighty-fifth days, and the earth is thrown up in ridges toward the canes. In the beginning of the fourth month, the field gets a full watering. Fifteen days afterwards, the intervals are ploughed lengthwise and across; and to each bunch of plants a basket or two of dung is given and ploughed in. The weeds are then destroyed by a hoe drawn by oxen; after which, channels must be formed between the rows; and until the cane ripens, which varies from fourteen to seventeen months, these channels are filled with water once in fifteen days. The crop season lasts from one month to six weeks.

Cardamoms—are propagated entirely by cuttings of the root, and spread in clumps exactly like the plantain-tree. In the month following the autumnal equinox, a cluster of from three to five stems, with the roots adhering, are separated from a bunch, and planted in the same row, one between every two areca-nut palms, in the spot from whence a plantain-tree has been removed. The ground around the cardamom is manured with *nelli* (*emblica*) leaves. In the third year, about the autumnal equinox, it produces fruit. The capsules are gathered as they ripen, and are dried four days on a mat, which during the day is supported by four sticks, and exposed to the sun, but at night is taken into the house. They are then fit for sale. Whenever the whole fruit has been removed, the plants are raised, and, all the superfluous stems and roots having been separated, they are set again; but care is taken never to set a plant in the spot from whence it was raised, a change in this respect being considered as necessary. Next

year these plants give no fruit, but in the year following yield capsules again, as at first. After transplantation, the old stems die and new ones spring from the roots. Each cluster produces from a quarter to one seer weight of cardamoms, or from $\frac{15}{100}$ to $\frac{6}{10}$ of a pound.

Areca-nut.—In the gardens near Channapatna the areca palm requires a rich black soil, and is planted in such places only as produce water on digging a well two cubits deep. There are here two varieties of the areca, the one bearing large and the other small nuts. The produce of both kinds is nearly equal in value and quantity.

The following is the manner of forming an areca-nut garden :—A plot of ground having been selected for a nursery, is dug to the depth of one cubit. When the seed is ripe, which happens between the middle of January and that of February, trenches must be formed in the nursery, a span broad and a cubit deep. The trenches are half filled up with sand, on the surface of which is placed a row of the ripe nuts. These are again covered with five inches of sand, and two inches of rich black mould, and watered once in three days for four months, at which time they are fit for being transplanted into the garden. The garden having been fenced with a hedge of *euphorbium tirucalli*, or *jatropha curcas*, is dug to the depth of a cubit at the same time with the nursery and planted with rows of plantain-trees at the distance of three cubits. When the young palms are fit for being transplanted the garden must be dug again to the former depth, and two young arecas must be set in one hole between every two plantain-trees. When there is no rain they must have water every third day. When the rainy season commences, a trench must be dug between every third row of trees ; that is to say, so as between every trench to form beds each of which contains two rows of the areca. These trenches serve to carry off superfluous water and to bring a supply from the reservoir when wanted. The garden must be dug twice a year to keep it clear of weeds. At the end of three years the original plantain-trees are removed, and a row is set in the middle of each bed and kept up ever afterwards in order to preserve a coolness at the roots of the areca. When the areca-trees are about five feet high, which requires about five years, they receive no more water than what is given to the plantain-trees, which in dry weather must be watered twice a month. The tree when five years old begins to produce fruit, and lives from thirty to forty years.

Each tree pushes out three or four spadices which from the middle of August until that of November become fit for cutting at different intervals of twenty or thirty days, one after the other. When the nuts have been cut, the skin is removed with an iron knife, and a quantity

is put into a pot with some water, in which it must be boiled till the eyes be separated. The nut is then cut into three or four pieces and for three or four days dried on mats exposed to the sun, when it becomes fit for sale. The plantations are interspersed with cocoa-nut, lime, jack and other trees, which add to the shade and to the freshness of the soil. Under the trees are cultivated ginger, and various vegetables.

The situation that is reckoned most favourable for areca gardens in Madgiri is a black soil which contains calcareous nodules. It differs from that in which cotton is raised by having the limestone a cubit or two deep; whereas the cotton requires it to be at the surface. The gardens at this place are watered from reservoirs, from canals, and from wells by means of the *kapile.*

To make a new garden,—in Srávana, the fifth month after the vernal equinox, plough four times. Then with the hoe called *yale gudali* form the garden into beds six cubits wide. Between every two beds is a raised channel for bringing a supply of water; and in the centre of each bed is a deep channel to carry off what is superfluous. The beds are divided into plots ten or twelve cubits long. Then plant the whole with shoots of the betel vine, and for its support sow the seed of the *háluvána*, *agase* and *nugge.* Then surround the whole with a thick hedge, and once a day for three months water with a pot. Whenever weeds grow they must be removed; and at each time the betel vines must get some dung. Between every two rows of the vines, in the fourth month, is put a row of young plantain-trees. Once in four days afterwards, the water is given from the reservoir or well. In six months the vines must be tied up to the young trees. At the same time, for every *wokkala* land, 3,000 nuts of the areca must be planted near the roots of the vines. When they are three years old a thousand of them will be fit for use, and 800 are required to plant a *wokkala* land, or about an acre and a half. They are planted distant in every direction from each other five cubits. At the same time plant on the inside of the hedge some rows of cocoa-nut palms and orange, lime, mango, or jack trees. The 800 areca palms, at five cubits distance, would only occupy about an acre; but a considerable space is taken up by a walk, and by the rows of fruit-trees between them and the hedge.

In nine years from the first formation of the garden the betel vines and most of the trees that supported them are removed. A few of the *agase* and allthe plantains are allowed to remain. In the twelfth year the areca palms begin to produce fruit. The remaining *agase* trees, and one-half of the plantains are then removed. After this the garden requires water only once in eight days when there is no rain; and the whole is dug over, and formed like rice-ground into proper squares

and channels for distributing the water. One year it is manured with dung; in the second with the leaves of the *honge* and *koghi*, and in the third year with mud from the bottom of a reservoir. So long as the garden lasts this succession of manures should, if possible, be continued; and when the palms attain their full growth, which is in the fourteenth year of the garden, the plantain-trees are entirely removed. For thirty years from its arriving at maturity the palm continues vigorous, and for fourteen years more gradually declines; during which time a new garden ought to be formed, and then the old trees should be cut, and the ground cultivated with grain, till the second formed garden again begins to decay. In place of those that die, some poor farmers plant new trees, and thus constantly keep up a garden on the same spot; but here this is looked upon as a bad practice.

The crop season lasts two months before, and one after, the autumnal equinox. The nut, after being peeled, is cut into seven or eight pieces, and put up in a heap. Then take one seer of the nut, one seer of *cut terra japonica*, and a hundred leaves of the *piper betel*, beat them together repeatedly with some water, and strain the juice thus obtained into a pot. Take twenty seers of the bark of the *kari jáli* and boil it during a whole night in a large pot with forty seers of water. With this decoction mix the juice expressed from the former materials, and boil again. While it is boiling, put in the areca-nut, after it has been cut, until the pot be full. Immediately after, take it out with a ladle, and put in more, till the whole is boiled. In order to be dried, it must be three days exposed on mats to the sun, and is then fit for sale. Forty maunds of dried nut is here reckoned the common produce of a *kolaga* land, which is about $6\frac{1}{3}$ cwt. an acre, or for each tree about $1\frac{1}{3}$ lb.

Near Chiknayakanhalli the areca thrives best in the rich black mould called *ere*, or *krishna bhúmi*. The natives here look upon it as a matter of indifference, whether or not, on digging a little depth, water may be found in the soil. All that is required is to have a proper supply of water either from the reservoir or by means of machinery.

In the second month after the winter solstice, the nut intended for seed is cut; and, having been put in a heap, is for eight or ten days kept in the house. A seed-bed is then dug to the depth of a foot, and three inches of the mould is removed from the surface, which is then covered with a little dung. On this the nuts are placed with their eyes uppermost, and close to each other. They are then covered with an inch of mould, and for three months are watered every other day. The seedlings are then three or four inches high, and must be transplanted into a fresh bed that is prepared in the same manner: but in this they

are placed a cubit distant from each other. Here they grow for three years, receiving water once every other day; and once a month they are cleaned from weeds and have a little dung.

One year after planting the seed, the ground that is intended for the garden must be dug to the depth of a cubit, and the soil exposed for two months. Young plantain-trees are then placed in it at sixteen cubits distance from each other, and it is surrounded by a screen of cocoa-nut palms, and of jack, lime, and orange-trees, which are defended by a hedge of the milk-bush. At the same time seeds of the *agase* are planted throughout the garden, at the distance of four cubits. When there is no rain the garden must once in fifteen days be watered by channels made for the purpose. In the second month after the summer solstice of the third year, the young arecas are fit for transplantation. Then throughout the garden, at the distance of sixteen cubits, and in the middle between every two plantain-trees, are formed pits, a cubit deep and a cubit wide. In each of these pits a young areca is put, and it must be carefully raised from the seed-bed with much earth adhering to its roots; and, after it is placed, the pit must be filled with earth, and then receive a pot of water. The young arecas are then between two and three feet high, and have four or five branches. If there be water in the reservoir, an irrigation once a month is sufficient; but the *kapile* must be used once in ten days, as the waterings given by it are but scanty. For three years afterwards the whole garden must be completely hoed twice annually. At the one hoeing, for every four arecas, it must have a bullock-load of dung; and at the other hoeing, every tree must be allowed an ox-load of red soil. The mud of reservoirs is here thought to be very bad for an areca-nut garden. Ever afterwards the garden is hoed completely once a year only, and is then manured with dung and red earth. At the intermediate period of six months, it is hoed near the trees, and has a little dung. At the end of the first three years the *agase* trees are cut. The plantains are always reserved; but, as the old stems are cut, which is always done in from twelve to eighteen months, the young shoots are conducted to a distance from where the parent was originally placed; and when the garden is twenty years old, in these spots are planted other young arecas, to supply the places of the old ones when they decay. This second set are again supplanted by a third, growing where the first set did, and thus a constant succession is preserved. In a new garden the areca begins to bear fruit in nine years; but fourteen or fifteen years are required to bring forward those which are planted among old trees. They continue to bear for sixty or seventy years; but after having been twenty-five or thirty years in perfection they begin to decay.

There are annually two crops of areca-nut: one in the second month after the summer solstice, the other in the two months which precede the shortest day. The last crop is superior both in quantity and quality. The nut, on being cut, is skinned in the course of two days, and put into a large pot with as much water as will cover it two inches. It is then boiled for about three-quarters of an hour until a white scum rises. The largest are then cut into eight pieces, and the smallest into two, with the others in proportion to their size. During the four following days they are spread out in the sun to dry, and every night they are gathered in a heap. When the fruit has been allowed to approach too near to maturity, the nut loses its colour; and a deceit is attempted by adding a little reddle to the water in which it is boiled. This frequently deceives the consumer, but never the experienced dealer; and seems to be done purposely to enable him to defraud the unwary.

A garden of 1,000 trees, allowing eight cubits square for each tree, ought to contain rather more than $3\frac{1}{3}$ acres; but a young garden, containing trees at sixteen cubits, will require $8\frac{1}{2}$ acres. The produce is reckoned from forty to sixty maunds. The areca-tree is never cut till its leaves have turned brown. Its stem has then acquired great hardness, and in building is very useful.

The following process is adopted in Periyapatna to make a new plantation of areca:—Take a piece of ground consisting of black mould or a substratum of limestone, with water at no greater depth than three cubits, and surround it with a hedge of the *euphorbium tirucalli*, and some rows of young cocoa-nut palms. Then, at the distance of twelve cubits, dig rows of pits, two cubits deep and one and a half in diameter. These pits are six cubits distant from the nearest in the same row. In the second month after the vernal equinox, set in these pits young plantain-trees, and give them water once; after which, unless the weather be uncommonly dry, they require no more.. Two months afterwards hoe the whole garden and form a channel in the middle between every two rows of plantain-trees. The channels are intended to carry off superfluous water, and are a cubit wide and two feet deep. In the month immediately following the winter solstice, hoe the whole garden a second time. In the following month, between every two rows of plantain-trees make two rows of holes, at six cubits distance and one cubit wide and deep. Fill each hole half up with fine mould; and in this place two ripe nuts of the areca, six inches asunder. Once in two days for three months water each hole with a pot. The shoots come up in Vais'ákha, after which they get water once only in five days. The holes must be kept clear of the mud that

is brought in by the rain ; and for three years must, on this account, be daily inspected. In the month following the autumnal equinox give a little dung. Ever afterwards the whole garden must be hoed three times a year.

After they are three years old the areca palms must be watered every other day in hot weather; when it is cool, once in every four or five days, and not at all in the rainy season. The waterings are performed by pouring a pot-full of water to the root of each plant. In the beginning of the seventh year the weakest plant is removed from each hole ; and at each digging, for three years more, every tree must receive manure. After this, for three years, the young palms have neither dung nor water. In the fourteenth year they begin to bear, and in the fifteenth come to perfection, and continue in vigour until their forty-fifth year, when they are cut down. The crop season lasts over Asvíja, Kártika, and Márgasira. A good tree gives 857, and an ordinary one 600, nuts. Sixty thousand nuts, when prepared for sale, make a load of between seven and eight maunds. One thousand ordinary trees at this rate should procure seventy-five maunds.

In Nagar the nursery is managed as follows :—In the month preceding the vernal equinox the seed is ripe. After having been cut, it is kept eight days in the house. In the meantime a bed of ground in a shady place is dug, and in this the nuts are placed nine inches from each other, and with their eyes uppermost. They must be covered with a finger-breadth of earth. The bed is then covered with dry plantain leaves, and once in eight days is sprinkled with water. In the month preceding the summer solstice, the plantain leaves are removed, and young shoots are found to have come from the nuts. In the second month afterwards, leaves of the *nelli* are spread between the young plants. In the month preceding the vernal equinox, they get a little dung. In the dry season they are watered once in from four to eight days, according to the nature of the soil.

In the month preceding the autumnal equinox of the second year, the young plants are removed into another nursery, where they are planted a cubit distant and manured with *nelli* leaves and dung. This nursery must be kept clear of weeds, manured twice a year, and in the dry season should receive water once in eight days. The seedlings remain in it two years, when they are fit for transplantation. When the arecas are three years old, they are removed into the garden, planted close to the drains for letting off the water, and remain there two years, when they are finally placed in the spots where they are to grow. Once in twenty or thirty years only the watering channels are filled up with fresh earth, and then are not allowed water. During that year the

garden is kept moist by occasionally filling the drains. The water in these is, however, reckoned very prejudicial, and is never thrown upon the beds. Once in two years the garden is dug near the trees and manured. The manure is dung, above which are placed the leafy twigs of all kinds of trees. When an areca dies, a new one is planted in its stead; so that in an old garden there are trees of all ages. When the trees are sixteen years old they are employed to support pepper vines. The extent of a garden of a thousand rated trees is about $18\frac{1}{4}$ acres. Its produce of areca-nut weighs $920\frac{1}{2}$ lb., and of pepper 117 lb.

Cocoa-nut.—There are four varieties of the cocoa-nut: 1st, red; 2nd, red mixed with green; 3rd, light green; and 4th, dark green. These varieties are permanent; but, although the red is reckoned somewhat better than the others, they are commonly sold promiscuously. Their produce is nearly the same.

The soil does not answer in the Bangalore District unless water can be had on digging into it to the depth of three or four cubits; and in such situations a light sandy soil is the best. The black clay called *ere* is the next best soil. The worst is the red clay called *kebbe*; but with proper cultivation all the three soils answer tolerably well.

The manner of forming a new cocoa-nut garden is as follows:—The nuts intended for seed must be allowed to ripen until they fall from the tree; and must then be dried in the open air for a month without having the husk removed. A plot for a nursery is then dug to the depth of two feet, and the soil is allowed to dry three days. On the *Ugádi* feast (in March) remove one foot of earth from the nursery, and cover the surface of the plot with eight inches of sand. On this place the nuts close to each other, with the end containing the eye uppermost. Cover them with three inches of sand and two of earth. If the supply of water be from a well, the plot must once a day be watered; but, if a more copious supply can be had from a reservoir, one watering in the three days is sufficient. In three months the seedlings are fit for being transplanted. By this time the garden must have been enclosed and hoed to the depth of two feet. Holes are then dug for the reception of the seedlings, at twenty feet distance from each other in all directions; for when planted nearer they do not thrive. The holes are two feet deep and a cubit wide. At the bottom is put sand seven inches deep, and on this is placed the nut with the young tree adhering to it. Sand is now put in until it rises two inches above the nut, and then the hole is filled with earth and a little dung. Every day for three years, except when it rains, the young trees must have water.

The cocoa-nut palm begins to produce when seven or eight years old, and lives so long that its period of duration cannot readily be ascertained. Young trees, however, produce more fruit, which comes forward at all seasons of the year. A good tree gives annually a hundred nuts. A few are cut green on account of the juice, which is used as drink ; but by far the greater part are allowed to arrive at some degree of maturity, although not to full ripeness ; for then the kernel would become useless.

Cocoa-nut palms are planted in Chiknayakanhalli in rows round the areca-nut gardens, and also separately in spots that would not answer for the cultivation of this article. The situation for these gardens must be rather low, but it is not necessary that it should be under a reservoir ; any place will answer in which water can be had by digging to the depth of two men's stature. The soil which is here reckoned most favourable for the cocoa-nut is a red clay mixed with sand. It must be free of lime and saline substances. Other soils, however, are employed, but black mould is reckoned very bad. The cocoa-nuts intended for seed are cut in the second month after the winter solstice. A square pit is then dug, which is sufficiently large to hold them, and is about a cubit in depth. In this, fifteen days after being cut, are placed the seed-nuts, with the eyes uppermost, and contiguous to each other ; and then earth is thrown in so as just to cover them, upon which is spread a little dung. In this bed, every second day for six months, the seed must be watered with a pot, and then the young palms are fit for being transplanted. Whenever, during the two months following the vernal equinox, an occasional shower gives an opportunity by softening the soil, the garden must be ploughed five times. All the next month it is allowed to rest. In the month following the summer solstice, the ground must again be ploughed twice ; and next month, at the distance of forty-eight cubits in every direction, there must be dug pits a cubit wide and as much deep. In the bottom of each a little dung is put ; and the young plants, having been previously well watered to loosen the soil, are taken up, and one is placed in each pit. The shell still adheres to the young palm, and the pit must be filled with earth so far as to cover the nut. Over this is put a little dung. For three months the young plants must be watered every other day ; afterwards every fourth day, until they are four years old, except when there is rain. Afterwards they require no water.

Every year the garden is cultivated for rági, uddu, hesaru, or whatever other grain the soil is fitted for, and is well dunged ; and at the same time four ox-loads of red mud are laid on the garden for every

tree that it contains, while a little fresh earth is gathered up toward the roots of the palms. The crop of grain is but poor, and injures the palms; it is always taken, however; as, in order to keep down the weeds, the ground must at any rate be ploughed; as the manure must be given; and as no rent is paid for the grain. On this kind of ground the cocoa-nut palm begins to bear in twelve or thirteen years, and continues in perfection about sixty years. It dies altogether after bearing for about a hundred years. They are always allowed to die; and when they begin to decay a young one is planted near the old one to supply its place.

In this country, wine is never extracted from this palm, for that operation destroys the fruit; and these, when ripe, are considered as the valuable part of the produce. A few green nuts are cut in the hot season, on account of the refreshing juice which they then contain, and to make *coir* rope: but this also is thought to injure the crop. The *coir* made from the ripe nuts is very bad, and their husks are commonly burned for fuel.

The crop begins in the second month after the summer solstice, and continues four months. A bunch is known to be ripe when a nut falls down, and it is then cut. Each palm produces from three to six bunches, which ripen successively. A middling palm produces from sixty to seventy nuts. As the nuts are gathered, they are collected in small huts, raised from the ground on posts. When a merchant offers, the rind is removed, at his expense, by a man who fixes an iron rod in the ground and forces its upper end, which is sharp, through the fibres; by which means the whole husk is speedily removed. He then, by a single blow with a crooked knife, breaks the shell without hurting the kernel, which is then fit for sale, and is called *kobbari*. A man can daily clean 1,300 nuts. From twenty to thirty per cent of them are found rotten.

Betel Vine.—The *betel vine* thrives best in low ground, where it can have a supply of water from a reservoir. If that cannot be had, a place is selected where water can be procured by digging to a small depth. A black soil is required. A betel-leaf garden is thus managed in the east:—In Chaitra or Vais'ákha, trench over the whole ground one cubit deep, and surround it with a mud wall; immediately within which plant a hedge of the *euphorbium tirucalli*, and of the *arundo tibialis*. When there is not plenty of rain, this must for six months be regularly watered. Then dig the garden, and form it into proper beds, leaving a space of about twenty feet between them and the hedge. From the main channel for conducting the water to the garden, draw others at right angles, and distant twenty-two cubits. Between every two of these, to

drain off the superfluous water, draw others about a cubit wide, and deeper than the former. The garden is thus divided into rows ten cubits in width, having on one side an elevated channel for supplying it with water, and on the other side a deep canal, to carry off what is superfluous. These rows are divided into beds, each also having on one side a channel to supply it with water, and on the other a canal to carry off what is superfluous; and it is surrounded by a narrow bank, about six inches high, which excludes the water that flows through the channels: within these little banks the divisions of the beds are carefully levelled.

In the centre of each division is then formed a row of small holes, distant from each other one cubit; and in Pushya (Dec.—Jan.) in every hole are put two cuttings of the betel-leaf vine, each two cubits long. The middle of each cutting is pushed down, and slightly covered with earth; while the four ends project and form an equal number of young plants, which for the first eighteen months are allowed to climb upon dry sticks that are put in for the purpose. For the first week after being planted, the shoots must be watered twice a day with pots; for another week once a day, and until the end of the second month once in three days. A small drill is then made across each division of the beds, and between every two holes in each; and in these drills are planted rows of the seeds of the *agase*, *nugge* and *varjepu*. The young betel plants must then have some dung, and for four months more must be watered with the pot once in three days. Afterwards, so long as the garden lasts, all the channels must once in four days be filled with water. This keeps the ground sufficiently moist, and water applied immediately to the plants is injurious. The garden ought to be kept clean from weeds by the hand, and once a year, in December, must have dung.

When the plants are a year and a half old they are removed from the sticks; two cubits of each, next the root, is buried in the earth; and the remainder, conducted close to the root of one of the young trees, is allowed to support itself on the stem. At the end of two years two cubits more of each plant are buried in the ground; and ever afterwards this is once a year repeated. At the beginning of the fourth year the cultivator begins to gather the leaves for sale, and for six or seven years continues to obtain a constant supply. Afterwards the plants die, and a new garden must be formed in some other place. In order to give additional coolness to the garden, at its first formation a plantain-tree is put at each corner of every bed, and by means of suckers soon forms a cluster. So long as the garden lasts these clusters are preserved. At all times the gardens are very cool and

pleasant; but they are not neatly kept; and in the space between the hedge and the beds, a great variety of bushes and weeds are allowed to grow.

In the west, the betel vine is grown with the areca palm in the following manner:—When the areca plantation is fifteen years old, in the month immediately following the vernal equinox, a hole is dug near every tree, one cubit deep and one and a half in width. After having exposed the earth to the air for a month, return it into holes and allow it to remain for another month. Then take out a little of the earth, smooth the surface of the pit, and bury in it the ends of five cuttings of the betel-leaf vine, which are placed with their upper extremities sloping toward the palm. Once every two days, for a month, water the cuttings, and shade them with leaves. Then remove the leaves and with the point of a sharp stick loosen the earth in the holes. In the first year the waterings must be repeated every day, and the whole must once a month be hoed; while at the same time dung is given to every plant. In the second year, the vines are tied up to the palms; once in two months the garden is hoed and manured; and it is in the hot season only that the plants are watered. At the end of the second year the vines begin to produce saleable leaves. In the third year and every other year afterwards, so much of the vines next the root as has no leaves, must be buried. Once in six months the garden must be hoed and manured; and in the hot season the vines must be watered every other day.

The owners of these plantations are annoyed by elephants, monkeys and squirrels; and, besides, both palms and vine are subject to diseases; one of which, the *anibe*, in the course of two or three years kills the whole. Except when these causes of destruction occur, the vine continues always to flourish; but the palm begins to decay at forty-five years of age, and is then removed, care being taken not to injure the vine. Near this is made a fresh hole, in which some persons place two nuts for seed, and others plant a young seedling. In order to support the vine during the fifteen years which are required to bring forward the new palm, a large branch of the *háruvána*, or *erythrina*, is stuck in the ground, and watered for two or three days; when it strikes root and supplies the place of an areca.

Coffee.[1]—The variety of coffee cultivated in Mysore appears to be the true *coffea arabica*, which Rhind informs us was originally introduced into Arabia from Abyssinia. It was introduced into this Province some two centuries ago by a person named Baba Budan, who,

[1] Adapted from a memorandum by Mr. Graham Anderson, C.I.E., Bargua Estate, Manjarabad.

on his return from a pilgrimage to Mecca, brought a few seeds, which he planted on the range of mountains still bearing his name.[1]

In the selection of land for coffee cultivation, care must be taken to obtain a tract well sheltered by nature from undue exposure either to the south-west or the east wind, and situated, with a northern, north-eastern, or north-western aspect, within the zone that is favoured with as large as possible a share of the March and April showers and yet not visited by too large a share of rain in the south-west monsoon. There is in fact a line or coffee zone in every coffee-producing country, and more especially in Mysore, even a mile beyond which the coffee-tree will not exist. The plant rejoices in a damp, warm temperature, such as is procurable in the west of Mysore at elevations from 2,500 to 3,500 feet above sea-level, although the tree will grow under certain circumstances at elevations both below and above these. A good rich loamy soil, of any colour, with a good deposit of vegetable matter on the surface, and not much sheet rock underlying it, is required.

There are five descriptions of land in Mysore in which coffee has been planted[2]:—the forest termed *káns*; heavy ghat forest, termed *male*; village jungles, termed *uḍuve*; *kumri*, or land the original timber on which having been cut has been followed by a secondary growth of trees of a smaller type; and *kaṇave*, or lands covered with hard-wood trees and bamboos. Some of the finest estates have been formed on lands of the first and third classes, which have the decided advantage over all other descriptions, of possessing a rich deposit of decayed vegetable mould that has not been exposed to atmospheric influences, and hence contains an almost inexhaustible store of organic and inorganic constituents available as food for the coffee plant.

The *káns* are generally situated in mountainous country, intersected by streams of clear water, with rocky or sandy beds. The peculiarity of the ravines through which these streamlets flow is, that the undergrowth is entirely different from that found under similar circumstances in the ghat forests, consisting as it does of a gigantic species of

[1] Further particulars of the history of coffee cultivation will be found under Kadur and Hassan Districts in Vol. II.

[2] This description applies to the Malnád, where alone extensive coffee plantations have hitherto been formed. But forty years ago there were coffee gardens in Bangalore, and a few plants were grown in private gardens under wells by European residents since then, yielding sufficient for domestic wants. The same practice seems to have been common in Cochin so far back as 1743, according to Cantervisscher's "Letters from Malabar." Of late years an experiment on a larger scale has been made at Bangalore, by Mr. Minakshaiya, and coffee grown with great success on irrigated land. The consequence has been a demand by European planters for land suitable for the purpose near Bangalore and Mysore, and in other Maidán parts.

triangular coffee-weed (called in Canarese *hanal* or *heb-gúrkal*), and other succulent plants, whereas in the latter case basket reeds (termed *warti*) and canes (*betta*) of every description are generally found in a tangled mass. *Uḍuve* is strictly village jungle or forest, sometimes almost entirely surrounded by rice-fields. The trees are frequently large and of good descriptions, and the undergrowth is principally small coffee-weed, bamboos and thorns. There are fewer ravines in this kind of land and they are generally smaller and less precipitous, but frequently old excavations, termed *wanigalu*, are met with, which evidently were dug out as approaches to villages formerly situated in the very heart of the forest. *Male* tracts are situated close to the crest of the ghats and generally contain gigantic timber, but can seldom boast of good soil, except in protected situations, the generality of the land having suffered from wash caused by the almost incessant rainfall in the monsoon. The great height of the trees also proves prejudicial to coffee, which is cut to pieces by the drip. The situation being bleak, windy, and exposed to terrific rainfall, is seldom profitable for coffee cultivation. *Kumri* lands frequently contain magnificent-*looking* soil, but a certain amount of virtue has gone out of it by former exposure, and although coffee has been planted and fine estates made on such land, still the operation is always accompanied by a considerable amount of risk, and always by heavy extra expenditure. In *kaṇave* lands ravines containing fair average soil and trees are to be met with, and these places are the only portions suitable for coffee. This description of land has the disadvantage of showing a maximum area of holding with a minimum of space available for cultivation.

Clearing for a plantation consists of removing with the axe and cutting all undergrowth and obstructions, and such trees as are not required. Large trees that have a thick foliage in the hot weather and little or none in the monsoon, are left as shade at regular distances, attention being paid to leave fewer trees on portions with a northern aspect than on those facing the south, all quarters exposed to the wind especially requiring protection. This accomplished, the ground is either cleared by lopping and laying in line to await the process of rotting in the monsoon, or fire is used to facilitate matters. Lines of pegs, generally at 6 × 6 feet, are then laid down, and the land is holed, each hole being generally one foot wide by two feet deep. This is done to remove all obstacles to the roots of the young plants, and to make a nice loose bed for their reception. Roads are traced to and from convenient points in the property, and these are again intersected by paths to facilitate the general working of the estate.

For *nurseries*, convenient situations, with facilities for irrigation or

with river or tank frontage, are selected and entirely cleared of trees, the soil being dug to the depth of two feet or more, and every root and stone removed. This is then laid out into beds, generally about four feet wide, separated by paths, and the whole well drained and put in order with the same care as a flower garden. Manure is applied and the beds are then cut up into furrows, at six inches apart, into which the seeds are placed, about one inch apart. The whole bed is then covered up with dry leaves and watered by hand, care being taken to maintain a uniform state of moisture, which must not be excessive. The seed germinates in six weeks, and from the bean, which is raised on a slender green stem of about eight inches in height, burst forth two small oval leaves. These two-leafed seedlings are pricked out into beds at either 4 × 4 or 6 × 6 inches, and require from ten to fourteen months, with constant attention and watering, to form into good plants, which should have three or four pairs of small primary branches and be from one foot to one and a half in height.

Planting is performed in the months of June, July and August. The plants being carefully removed from the beds and the roots trimmed, they are planted either with a *mamoti* or planting staff by a regular gang of experienced men. Great attention is paid to this operation to see that the holes are properly filled in and that the roots are not bent or injured, and lastly that the plants are firmly set in the ground and not hung.

Under favourable circumstances, the plants are ready for *topping* in the second year. A topping staff, duly marked to the proper height, is placed alongside of the young tree, and the top or head and *one* primary branch are removed. Trees are topped at heights varying from two feet to four and a half feet, but the medium of three feet is generally preferred. This operation has the effect of directing the sap into the primary branches and making them throw out secondary shoots, which come from each eye along the branch. An abundance of vigour has the effect of forcing out a number of shoots under the junction of the upper primaries with the stem, and also from the stem at various places. These are termed suckers, and are all removed by gangs of women and boys. The first crop generally appears in the third year, and consists merely of a few berries on the primary branches, aggregating about one maund per acre. In the fourth year a return of about one cwt. per acre may be expected, and it is not until the seventh or eighth year that the planter is rewarded by a full crop, which, even under the most favourable circumstances, rarely exceeds five or six cwts. per acre.

The crop commences to ripen in October and November. As soon

as the cherries are of a fine red colour, they are picked into baskets, and brought to the pulper to be either measured or weighed, and deposited in a vat made for their reception. They are passed through the pulper with a stream of water either the same day or early next morning, and the pulp or outer skin being thus removed, the beans are allowed to ferment for twenty or twenty-four hours, without water, to facilitate the removal of the saccharine matter which surrounds them. After the mass has been washed and well stamped out in three waters, all light beans and skins being carefully separated, the beans are removed to the draining mats, where they are constantly turned over and allowed to remain for a day or more, or until all water has drained off. They are then spread out thickly on the drying ground in order to dry slowly. This is an operation requiring constant attention for six or eight days, the whole having to be covered up every evening to protect it from dews. The beans should not be dried too thinly spread, or too suddenly exposed to the full rays of the sun, as they are apt to become bleached and bent. A drying ground protected by large trees is the best, as in that case portions in shade and sun are both available. When the beans are sufficiently dried, they are bagged and despatched to the coast or Bangalore for preparation and shipment.

The yield of an estate that has been well maintained in cultivation may be put down at from three and a half to four cwts. per acre. As much as six cwts. per acre have been produced off portions, but of course only under the most favourable circumstances, and such is an exception to the general rule. An accurately calculated estimate shows that, in a series of years, the crop is more frequently below three and a half cwts. than above. But the result varies in different places.

The earliest official notice[1] of coffee in Mysore is said to have been in 1822. But though the plant has been known for so long, it is only of recent years that coffee has come into use among natives, and chiefly in the towns. When Mr. Elliot first settled in Mysore, in 1856, he was repeatedly asked by the farmers of the country whether Europeans ate the berry, or of what use it could possibly be. The variety of coffee originally cultivated here came to be known as Chick, probably from Chickmagalur, the principal town at the foot of the Baba Budan hills, the Mysore home of the plant. This variety had thriven well and promised to do so for an indefinite period of time, but in 1866 and the three succeeding years there were dry hot seasons, which caused a wide-spread attack of the Borer insect. About the same time a general

[1] The information in the following paragraphs is taken chiefly from *Gold, Sport and Coffee-planting in Mysore*, by Mr. R. H. Elliot, of Bartchinhulla Estate, Manjarabad.

decline in the constitution of the trees became manifest. So serious was the result that coffee-planting seemed likely to come to an end in Mysore, except in the case of a few elevated tracts in the Baba Budan hills. At this juncture, in 1870, Mr. Stanley Jupp, having observed advantages in the coffee grown in Coorg, recommended his brother planters to introduce seed from that province. The young plants raised from the imported seed throve with extraordinary vigour, and it was soon found that the new variety would grow and crop well, and even on land on which all attempts to reproduce the Chick variety had utterly failed. "Then this sinking industry rose almost as suddenly as it had fallen; old and abandoned estates, and every available acre of forest and even scrub, were planted up; and land which used to change hands at from Rs. 5 to 10 an acre was eagerly bought in at twelve times these rates." Another cause for anxiety, however, now arose, for when the produce of the new variety came into the market, brokers objected to pay Mysore prices for Coorg coffee. But, as the trees from Coorg seed aged, the produce each year assimilated more and more in appearance and quality to that of the old Mysore plant. Consequently the Coorg variety, the stock of which is kept up by continual importations of fresh seed, has been permanently adopted as a plant which crops more regularly and heavily than the Chick, and the produce of which has so improved under the influence of the soil and climate of Mysore, that, with the exception of the long-established brand of "Cannon's Mysore," and the produce of a few other estates that still grow Chick, in the Baba Budan hills, there is little difference in value.

The high reputation of Mysore coffee, the best quality of which is commonly quoted at 10s. to 15s. a cwt. above that of any other kind that reaches the London market, is attributed partly to the soil and climate, and partly to the coffee being slowly ripened under shade. The pioneers of the industry, following the practice in Ceylon, had cleared away all the forest and planted their coffee in the open. That this was a fatal mistake was not at first decisively apparent. But the devastations of the Borer and leaf disease, the great enemies of coffee, eventually put the question beyond all doubt. And so clearly is the vital necessity of shade now recognized, that, in Mr. Elliot's opinion, formed after ample experience, "if good shade of the best kind is grown, it is absolutely impossible to destroy a plantation in Mysore, even with the worst conceivable management or neglect." The easiest of the methods that have been adopted for providing shade is to clear down and burn the entire forest and then plant shade trees along with the coffee. Another plan is to clear and burn the underwood and a certain portion of the forest trees, leaving the remainder for shade.

Experience shows that the retention of as much as possible of the original forest is desirable, and that land which has not been burnt will last far longer. To this may be attributed the continued existence of the most ancient estates in Mysore.

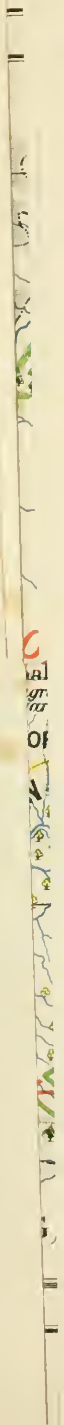
Five trees are specially recommended as the most suitable to grow for shade, namely, *kap basari* (ficus tjakela, Burm.)[1], *góni* (ficus mysorensis, Heyne), *kari basari* (ficus infectoria, Roxb.), *ili basari* (a variety of the same), and *mitli* (? streblus asper, Lour.), of which there are two kinds, *heb mitli* and *haralu mitli*, the second being "a bad tree." The trees should be planted in lines running east and west, in order to provide shade from the southerly sun, and so close in each row that in five or six years the tops will touch. When they begin to crowd, every other one should be removed, and this process can be repeated if found necessary.

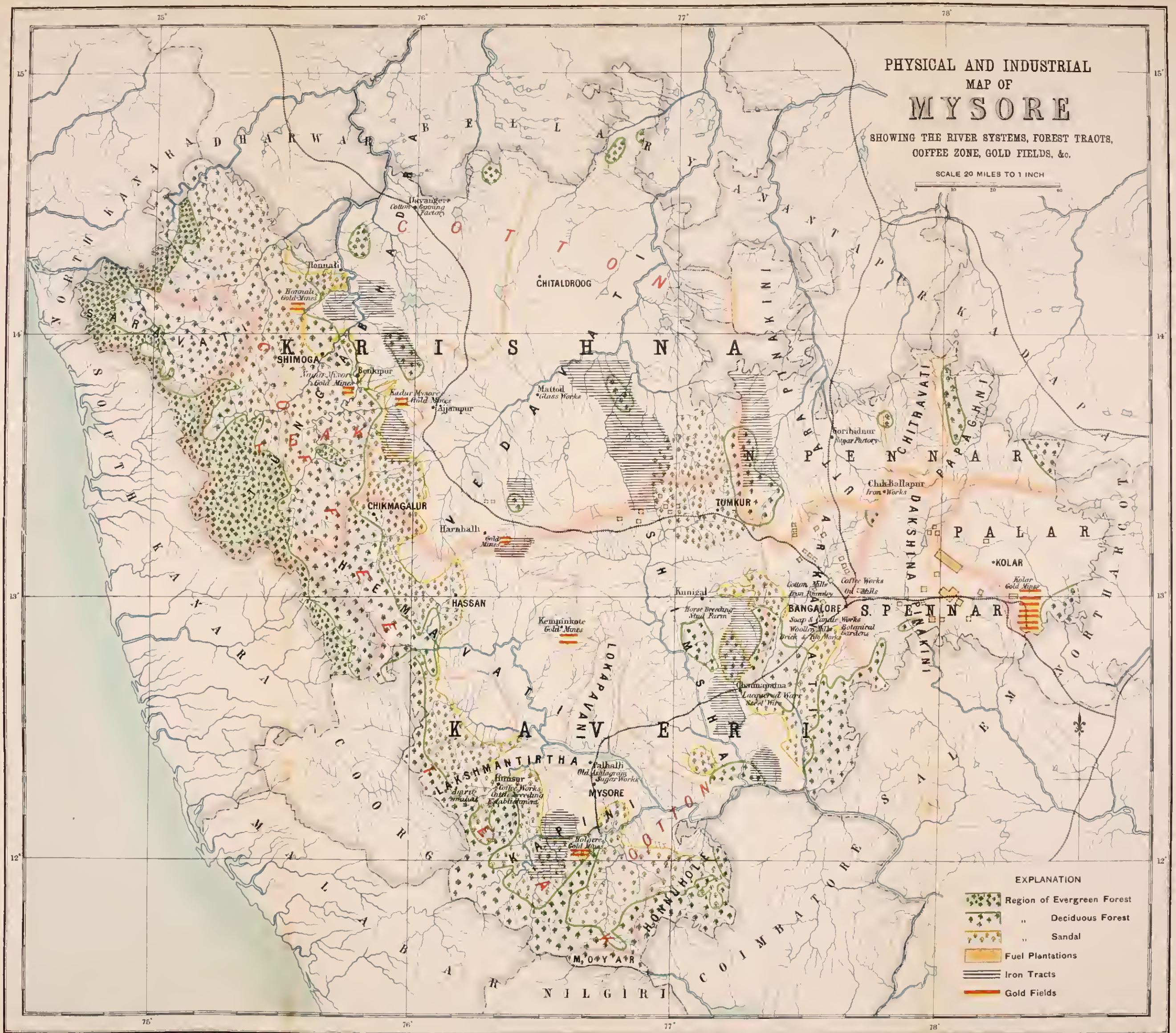
Of the diseases to which the coffee plant is subject in Mysore, *leaf disease* is the growth of a fungoid named *hemileia vastatrix*, which distributes its spores in the form of yellow powder. The effect is to strip the tree more or less of its foliage. The disease called *borer* is due to a beetle (*xylotrechus quadrupes*), red or yellow with black lines, and about as large as a horsefly. It lays its eggs in some crevice in the bark. The larvæ, when hatched, bore into the stem and live on the heartwood for from three to five months, when they eat their way out as winged beetles. Coffee-trees attacked by borer wither away throughout the part the insect has injured. The best remedy for and preventive of both diseases is said to be properly shading the coffee with suitable trees. Another disease of coffee is called *rot*, also the growth of a fungoid, named *pellicularia koleroga*, which covers the leaves and berries with a black slime, causing them to rot away. The free circulation of air seems to be required when this appears.

With the view of ascertaining whether coffee grown from seed imported from other countries would be less susceptible to leaf disease, Messrs. Matheson and Co. went to great expense in Coorg in introducing coffee seed from Brazil, Venezuela, Costa Rica, and Jamaica. But it was found that in that respect they were neither better nor worse than the Coorg variety. A further experiment has been made with Blue Mountain seed, but the plants do not seem to be in any way different.

Liberian coffee (*coffea liberica*), a taller and stronger plant, with a larger leaf and berry, was introduced by Colonel Benson, Assistant

[1] Mr. Elliot gives this as Cub Busru (Ficus tuberculata), and no botanical name for the last two. My names are taken from Mr. Cameron's catalogue on the assumption that they represent the trees intended.




PHYSICAL AND INDUSTRIAL
MAP OF
MYSORE
SHOWING THE RIVER SYSTEMS, FOREST TRACTS, COFFEE ZONE, GOLD FIELDS, &c.
SCALE 20 MILES TO 1 INCH
EXPLANATION
Region of Evergreen Forest
" Deciduous Forest
" Sandal
Fuel Plantations
Iron Tracts
Gold Fields
KRISHNA
KAVERI
PENNAR
PALAR
S. PENNAR
COTTON
COFFEE
DHARWAR
BELLARY
ANANTAPUR
KADAPA
NORTH ARCOT
SALEM
COIMBATORE
NILGIRI
MALABAR
COORG
SOUTH KANARA
NORTH KANARA
SHIMOGA
CHIKMAGALUR
HASSAN
MYSORE
BANGALORE
TUMKUR
KOLAR
CHITALDROOG
Honnali
Honnali Gold Mines
Bankipur
Kadur Mysore Gold Mines
Ajjampur
Davangere Cotton Spinning Factory
Mattod Glass Works
Harahalli
Kemminkote Gold Mines
Kunigal
Horse Breeding Stud Farm
Chik Ballapur Iron Works
Gauribidnur Sugar Factory
Kolar Gold Mines
Botanical Gardens
Palhalli
Hunsur
Coffee Works
Heggadevankote
MOYAR
HONNUHOLE
LAKSHMANTIRTHA
KAPINI
LOKAPAVANI
SHIMSHA
ARKAVATI
HEMAVATI
TUNGA
VEDAVATI
CHITRAVATI
PAPAGHNI
DAKSHINA PINAKINI
UTTARA PINAKINI
SARAVATI
75°
76°
77°
78°
15°
14°
13°
12°

Commissary-General, about the time when leaf disease was causing such destruction. It was thought that this hardier plant, native of a hotter climate and lower region, might be found proof against the disease. But, notwithstanding various experiments, whether the flavour of the berry is inferior, or from whatever cause, it has not supplanted the old variety.[1] A hybrid, a cross between the two, is said to be more promising.[2]

Among *plants of economic value* introduced into the country in recent years, the following are deserving of mention :—

Casuarina.—None has been more successful or more extensively cultivated, principally as a fuel tree, than *Casuarina equisetifolia*, called by the natives *késarike*. It is an Australian tree, the swamp oak of Queensland, but better known as the Tinian pine or beefwood tree. The numerous and extensive plantations formed of it, especially in the Bangalore District, have visibly altered the landscape in some parts. As fuel it develops more heat in a given quantity than any other kind of local wood ; in fact, for locomotive and domestic purposes it is found necessary to use inferior fuel with it, in order to moderate the intense heat, which would otherwise prove destructive to engines and utensils. In experiments on the Mysore State Railway it was reckoned that casuarina logs ran a train over a distance thirteen per cent. in excess of that attained by the next best kind of fuel available in the Mysore forests.

Cinchona.—Two plantations were originally formed ; one in 1866 at Kalhatti on the Baba Budan hills (Kadur District), with 5,000 plants, and the other in 1867 on the Biligiri Rangan hills in Yelandur (Mysore District), with 2,000 plants. The only kind permanently cultivated was *C. succirubra* ; the more valuable but less hardy species of *C. calisaya* and *C. officinalis* were also tried, but without success. The number of trees in the first plantation had increased to 24,000, and a number had been distributed to favourable localities in the western Districts, when in 1871 the bark of trees from both plantations was submitted to analysis by Mr. Broughton, Quinologist to the Madras

[1] Mr. Cameron says :—"When first introduced, the Liberian species had the reputation of being tropical in its requirements, and that its cultivation would extend to the plains of India. Experience has not proved this capacity, although, no doubt, when under shade, the plant can endure a considerably higher degree of temperature than the Arabian shrub. But under full exposure to the sun the former died outright, while the established species grew vigorously and produced good crops of coffee."

[2] The following grafts have been established at the Lal Bagh for experiment :— Liberian on Arabian stock, Arabian on Liberian stock, Maragogipe on Arabian stock, Liberian on itself, Arabian on itself.

Government. The results obtained by him were reported as follows :—

Site of Plantation.	Yield in percentages of dry bark.				
	Total Alkaloids.	Quinine.	Chinchonidine and chinchonine.	Pure sulphate of quinine obtained crystallized.	Other sulphates of quinine.
Baba Budans { trunk ...	4·50	·86	3·64	·67	2·35
Baba Budans { branch..	1·48	·42	1·06	·30	·60
Biligiri Rangans ...	7·50	2·01	5·49	1·09	4·84

The above analyses showed that, while as a source of alkaloids the bark of the Baba Budan plantation was of satisfactory quality, it was inferior in yield of total alkaloids to the bark from trees of the same age on the Nilgiris, namely, branch bark 2·28 per cent., trunk bark 6·49 per cent. " But though the amount of alkaloids is thus less," Mr. Broughton observed, " than is usual with good India grown bark, it fully equals the yield of ordinary red bark from South America." The bark from the Biligiri Rangan plantation was pronounced of high quality for *C. succirubra* and quite equal to that grown on the Nilgiris.

In consequence of this report the intention of extending the Baba Budan plantation was abandoned, but private planters, occupying more suitable sites, were encouraged to grow cinchona. Meanwhile the febrifuges obtained from the plantations were distributed to the local hospitals, and in 1875 the gardener in charge was sent to Ootacamund for instruction in collecting bark by the coppicing and the barking and mossing processes. Eventually, in 1877, the Biligiri Rangan plantation was made over to the Jagirdar of Yelandur, in whose estate it was situated, on his paying to Government half the produce of bark yielded for five years ; and in 1881 the Baba Budan plantation was sold to Mr. Sylk, a private planter, for Rs. 5,000.

The existing depression of the quinine trade holds out at present, it is understood, little prospect of profit on the cultivation ; but the importance and medicinal value of the products of cinchona are never likely to diminish, and prices may again rise, though probably not to former rates. Special arrangements are being made, in common with other Indian Governments, for the manufacture and cheap distribution of quinine to all classes (for the latter purpose using the agency of the village post offices), a boon which should be highly appreciated in the malarious and fever-stricken parts of the country.

Cinchona cultivation has since 1881 been entirely in private hands, and the following are the statistics for 1893-4, the plants being mostly scattered, in the midst of coffee or cardamom estates:—

Species.	District.	No. of acres.	No. of plants.	
			Mature.	Immature.
C. succirubra (red bark)	Mysore ...	24	8,860	12,873
	Kadur ...	224	124,255	43,450
	Total ...	248	133,115	56,323
C. officinalis, var. condaminea (Loxa or crown bark; pale bark) ...	Mysore ...	1	75	1,141
	Hassan ...	36	8,000	5,003
	Kadur ...	34	14,464	...
	Total ...	71	22,539	6,144

Vanilla.[1]—In a climate like that of Bangalore there is no difficulty whatever in cultivating the *vanilla aromatica*, as it grows luxuriantly without artificial assistance, provided that a suitable position is selected for the plantation. The least expensive and perhaps the most favourable site which can be selected for the purpose is an *old* mango tope, because the mango-trees in that stage are not too dense in foliage, and are better adapted to produce the checkered shade so essential to the healthy development of the vanilla plants. Like all succulents, this plant detests excessive moisture; swampy situations should therefore be avoided. A light vegetable soil intermixed with sand is an agreeable compost, and cocoa-nut fibre is perhaps the best manure that can be applied. Ordinary-sized cuttings generally produce flowers three years after they are rooted, but large cuttings consisting of four or more nodes will produce flowers two years after they are rooted. The vanilla should be planted round the base of the mango-trees, small beds of the soil recommended having been previously prepared, and as the plants grow they should be trained round the stem and along the principal limbs of the trees for their future support.

In South America an indigenous insect fertilizes the vanilla flowers

[1] From notes by Mr. Cameron, Superintendent of the Lal Bagh.

accidentally, and thus secures the fruit, but in this country no such insect has yet made its appearance. We must therefore adopt our own means to fecundate the flowers. The process is simple when once acquired. The organs of reproduction (unlike the ordinary state of things) are disposed in a peculiar form, as if to prevent natural fecundation, and until this takes place by artifice, or chance as explained, the beans which comprise the economic product of vanilla will not be obtained.

Cocoa.—The chocolate-nut tree, *theobroma cocoa*, is indigenous to South America and the W. Indies, where it has been cultivated for various uses for many generations. The tree is an evergreen, which grows from sixteen to twenty-five feet high. The leaves are entire, smooth, and very glossy in appearance; the flowers, which are diminutive, are borne on the stem and principal limbs of the tree; hence the rare and curious appearance which the capsules present suspended from the bare stem. The trees in the Government Gardens have produced fruit freely. The peculiarities of the cultivation consist in the application of dense shade, moderate moisture, and decomposed vegetable soil, chiefly. Salt is also an indispensable ingredient in a compost for chocolate trees.

Rhea.—The Rhea plant or China grass of commerce is the *boehmeria nivea*. The fibre produced from the bark of this plant is very strong and delicate, but the difficulty of preparing it by machinery continues to obstruct its utility on an extensive scale. There are three species of *boehmeria* in the Lal Bagh, and the climate of Mysore seems to facilitate their growth. The young shoots which produce the fibre grow more regular and free under half shade than when fully exposed to the sun's rays. The species *nivea* is quite established here, but never produces seed. It possesses the great advantage, however, that it can be helped by man; so that its naturalization in most parts of India is almost certain.

The following are other plants whose experimental cultivation has been more or less successful, some of them being permanently established:—

Acrocarpus fraxinifolius	Shingle-tree
Agave rigida ...	Sisal hemp
Artiplex nummularia	Salt bush
Artocarpus cannoni	Copper-coloured foliage
Artocarpus incisa ...	Seedless bread fruit
Bambusa vulgaris ...	Golden bamboo
Barringtonia speciosa	Ornamental tree
Brassica chinensis...	Shantung cabbage
Broussonettia papyrifera	Paper mulberry tree
Bursaria spinosa ...	Ornamental tree
Cæsalpinia coriaria	Divi-divi tree
Carissa edulis ...	(Edible berry)
Castonospermum australe	Moreton - bay chestnut
Castilloa elastica ...	Central American rubber

Ceratonia siliqua ...	Carob-bean tree	Manihot glaziovii ...	Ceara-rubber tree
Clausena wampi ...	Wampi (fruit)	Mentha viridis ...	Spearmint
Cola acuminata[1] ...	Kola nut	Millingtonia portensis	Indian cork tree
Colvillea racemosa	Ornamental tree	Monstera deliciosa	Climbing aroid
Couroupita guianensis	Cannon-ball tree	Opuntia ficus indica	Malta prickly-pear
Crescentia alata ...	Calabash tree	Panicum sarmentosum	Mauritius grass
Cyphomandra betacea	Tree tomato	Paritium elatum ...	Cuba bast
Dipsacus fullonum	Fullers' teazel	Parmentiera cerifera	Candle tree
Erythroxylon coca	Yields cocoaine	Phœnix dactylifera	Date-palm
Euchlæna luxurians	Buffalo grass	Pithecolobium saman	Rain tree
Fagopyrum esculentum	Buckwheat	Poinciana regia ...	Gold-mohur tree
		Rubia tinctorum[2] ...	Madder plant
Grevillea robusta ...	Silver oak	Rubus idæus ...	Raspberry
Gynocardia odorata	Yields chaulmugra oil	Smilax sarsaparilla	Yields sarsaparilla
		Stillingia sebifera ...	Chinese tallow tree
Hyoscyamus niger	Henbane	Trapa bispinosa ...	Zinghara nut, water chestnut
Lagunaria patersonii	Foliage tree		
Landolphia kirkii ...	Yields caoutchouc	Tristania conferta ...	Timber tree
Landolphia watsoni	Yields caoutchouc	Vangueria edulus ...	Fruit tree
Malachea capitata	Yields fibre	Vitis martini ...	Cochin-China vine

Experiments have also been made with several varieties of cotton and potatoes. Varieties of cocoa-nut have been imported from Colombo in Ceylon; also trial has been made of various kinds of grape vines, loquat and bhere fruit (zizyphus jujuba).

It may be useful here to give the following list of plants whose cultivation has been attempted without any permanent success at Bangalore :—

Acacia decurrens ...	Black wattle	Durio zibethinus ...	Durian
Arracacia esculenta	Arracacha	Eucalyptus globulus[3]	Blue gum
Avena elatior ...	Common oat		
Camellia theifera ...	Tea plant	Garcinia mangostana[4]	Mangosteen
Caryophyllus aromaticus	Clove tree	Glycine hispida ...	Soy bean
Cassia obovata ...	Tinnevelly senna	Helianthus annuus	Russian sunflower
Castania vulgaris ...	Spanish chestnut	Humulus lupulus ...	Hop vine
Catalpa speciosa ...	Californian timber tree	Myristica fragrans	Nutmeg tree
		Platanus orientalis	Oriental plane
Cephælis ipecacuanha	Ipecacuanha	Symphytum asperrimum	Prickly comfrey
Cyperus esculentus	Ground almond, rush-nut	Ullucus tuberosus	Tuber
		Withavia (Puneeria) coagulans	Cheese-maker
Cyperus pangorei ...	Sedge		

[1] Botanically not far removed from the indigenous *kendale mara* (sterculia urens).

[2] The plant which yields Indian madder has been found wild in Kankanhalli and other parts.

[3] Eucalyptus saligna, rostrata, marginata and citriodora are established in the gardens and furnish seed.

[4] Grafting it on the gamboge tree (Garcinia morella) seems to have been successful in Jamaica.

FAUNA

FERÆ NATURÆ

Nothing less than a separate treatise, and that a voluminous one, could do justice to the marvellous wealth of the animal kingdom in a province under the tropics marked by so many varied natural features as Mysore. An attempt has been made to present a list of the main representatives, with the Kannada names, where they could be ascertained. A few notes on the localities frequented by particular animals will be found in Vol. II.

Mammals—Mammalia.[1]

Primates.

Cercopithecidæ—Monkeys—*Kóti.*		
Macacus silenus ...	Singalíka, karkóḍaga ...	The lion-tailed monkey
Macacus sinicus ...	Kóti, manga, kóḍaga ...	The common monkey of the country
Semnopithecus entellus	Musu, musuva, musuku[2]...	The langur, or Hanuman monkey
Semnopithecus priamus	Konḍa-musuku, konḍa-mosava	The Madras langur
Semnopithecus johni...	... ...	The Nilgiri langur
Lemuridæ—Lemurs.		
Loris gracilis ...	Nala, aḍavi manushya ...	The slender loris

Carnivora.

Felidæ—Cat tribe—*Bekku.*		
Felis tigris	Huli, heb-huli	The tiger[3]
Felis pardus	Kiraba, ibbandi, doḍ-ibba	The leopard or panther,[4] commonly called cheeta
Felis bengalensis ...	Huli bekku, bottina bekku	The leopard cat
Felis chaus	Káḍu bekku	The wild or jungle cat
Cynælurus jubata ...	Chirite, sivangi, chircha ...	The hunting leopard, the proper cheeta

[1] The classification and names are taken from W. T. Blanford's work on the *Fauna of British India*, and the vernacular names have been revised.

[2] It seems doubtful if this monkey is found in the South, and the names may belong to S. priamus.

[3] There are said to be two varieties,—the *heb-huli*, or large royal tiger, found in the large jungle; and the *huli*, which is much smaller and is more destructive to human life, frequenting inhabited parts of the country. It has the black stripes closer together over the hind quarters.

[4] The black variety is occasionally met with.

Viverridæ—Civets.		
Viverricula malaccensis	Punagina bekku, javádi bekku	The civet cat
Paradoxurus niger ...	Kira bekku, kabbu bekku	The tree cat or toddy cat
Herpestes mungo ...	Munguli, mungasi, kira .	The mungoose
Herpestes smithi ...	... ...	The ruddy mungoose
Hyænidæ—Hyænas—*Kirabu.*		
Hyæna striata ...	Kirabu, katte kiraba ...	The striped hyæna
Canidæ—Dog tribe—*Náyi.*		
Canis pallipes... ...	Tóḷa	The Indian wolf
Canis aureus	Nari, ballu, guḷḷa nari ...	The jackal
Cyon deccanensis ...	Sil náyi	The Indian wild dog
Vulpes bengalensis ...	Kempu nari, channangi nari	The Indian fox
Mustelidæ—Weasels.		
Mellivora indica ...	... ...	The Indian ratel
Lutra vulgaris ...	Nír-náyi	The common otter
Ursidæ—Bears—*Karaḍi.*		
Melursus ursinus ...	Karaḍi	The Indian bear

Insectivora.

Soricidæ—Shrews—*Sunḍ ili.*[1]		
Crocidura cærulea ...	Sunḍ ili, sonḍ ili ...	The musk rat or shrew
Crocidura perroteti ...	Múg-ili	Pigmy rat or shrew

Chiroptera.

Pteropodidæ—Frugivorous bats—*Bával.*		
Pteropis edwardsi ...	Togal bávali, toval or tóle hakki	The Indian fruit bat or flying fox
Cynopterus marginatus	... ...	The short-nosed fruit bat
Rhinolophidæ—Insectivorous bats—*Kaṇ-kappaṭe.*		
Rhinolophus luctus ...	... ...	The great horse-shoe bat
Rhinolophus affinis ...	... ...	The allied horse-shoe bat
Hipposiderus speoris...	... ...	Schneider's leaf-nosed bat
Hipposiderus bicolor...	... ...	The bicoloured leaf-nosed bat
Nycteridæ.		
Megaderma lyra ...	... ...	The Indian vampire bat
Vespertilionidæ.		
Vesperugo mordax ...	... ...	The grizzled bat
Vesperugo circumdatus	... ...	The black bat
Vesperugo abramus ...	gabbiláyi	The Indian pipistrelle
Vesperugo kuhli ...	... ...	The white-bordered bat
Nyctecegus dormeri ...	... ...	Dormer's bat
Nyctecegus kuhli ...	... ...	The common yellow bat
Emballonuridæ.		
Taphozous melanopogon	... ...	The black-bearded sheath-tailed bat
Taphozous longimanus	... ...	The long-armed sheath-tailed bat
Taphozòus saccolæncus	... ...	The pouch-bearing sheath-tailed bat

[1] Properly *sunḍil ili.*

Rodentia.

Sciuridæ—Squirrels—*Udute.*		
Pteromys oral... ...	Háruva bekku	The brown flying squirrel
Sciurus indicus ...	Kes-aḻilu, kemp-aḻilu, kend-aḻilu	The large Indian squirrel
Sciurus macrurus ...	... ...	The grizzled Indian squirrel
Sciurus palmarum ...	Alilu, aṇilu, udute ...	The common striped squirrel
Sciurus tristriatus ...	Káḍ-aḻilu...	The jungle striped squirrel
Muridæ—Rats and mice—*Ili.*		
Gerbillus indicus ...	Bila ili	The Indian gerbille, or antelope rat
Mus rattus	Ili	The common Indian rat
Mus decumanus ...	Kemp ili...	The brown rat
Mus musculus... ...	Chiṭṭ ili	The common house-mouse
Mus buduga	Bail ili	The Indian field-mouse
Mus platythrix ...	Kal ili	The brown spiny mouse
Mus mettada	Tóḍa	The soft-furred field-rat
Nesocia bengalensis ...	Bail ili	The Indian mole-rat
Nesocia bandicota ...	Heggana...	The bandicoot rat
Golunda elliotti ...	Golandi	The Indian bush-rat (the coffee-rat)
Hystricidæ—Porcupines—*Muḷ-handi.*		
Hystrix leucura ...	Muḷ-handi, edu, eyya ...	The porcupine
Leporidæ—Hares—*Mola.*		
Lepus nigrocollis ...	Moḷa	The black-naped hare

Ungulata.

Elephantidæ—Elephants—*A'ne.*		
Elephas maximus ...	A'ne	The Indian elephant
Bovidæ—Ox tribe—*Yettu, basava.*		
Bos gaurus	Káḍ kóṇa, káṭe ...	The bison, or gaur
Hemitragus hylocrius[1]	Káḍ áḍu	The Nilgiri wild goat (ibex)
Boselaphus tragocamelus	Káḍ kudure	The nilgai, or blue bull
Antelopidæ—Antelopes—*Chigari.*		
Tetraceros quadricornis	Konḍa-guri	The four-horned antelope
Antilope cervicupra ...	Chigari, hulle	The Indian antelope, or black buck
Gazella bennetti ...	S'ank hulle	The Indian gazelle, or ravine deer
Cervidæ—Deer tribe—*Jinke.*		
Cervulus muntjac ...	Káḍ-kuri	The barking deer, or jungle sheep
Cervus unicolor ...	Kaḍave, kaḍa	The sámbar deer
Cervus axis	Sáraga, duppi	The spotted deer
Tragulus meminna ...	Kur-pandi	The Indian mouse-deer
Suidæ—Hogs—*Handi.*		
Sus cristatus	Káḍ handi	The Indian wild boar

Edentata.

Manidæ—Ant-eaters.		
Manis pentadactyla ...	Chip handi	The Indian pangolin.

[1] There is some doubt whether ibex and nilgai are actually found in Mysore, but they are met with on the borders.

The most destructive to life are tigers, and panthers or cheetas. The following figures for the years 1890 to 1892 show the extent of loss, and what has been done to counteract the ravages of the larger animals, so far as the matter has come under official notice.

In 1889-90, there were four persons killed by tigers, two by panthers, and six by other animals; while of cattle, 1,150 were killed by tigers, 2,246 by panthers, 7 by bears, 2,695 by wolves, 362 by hyænas, and 225 by other animals.

In 1890-1, there were one person killed by an elephant, two by tigers, one by a bear, and four by other animals; of cattle, tigers killed 1,263, panthers 2,554, bears 49, wolves 1,823, hyænas 109, and other animals 289.

In 1891-2, there were one person killed by an elephant, one by a panther, three by hyænas, and nine by other animals; of cattle, 2,055 were killed by tigers, 3,621 by panthers, 2,439 by wolves, 242 by hyænas, and 375 by other animals.

The regular rewards offered for the destruction of wild beasts are Rs. 40 for a tiger or panther, and up to Rs. 10 for a hyæna. Elephants are too valuable to be destroyed, but a special reward is sometimes offered for the destruction of a rogue elephant that has become dangerous to life.

The amounts paid in rewards in the above years were as follows:—

Rs. 3,728 in 1889–90, namely, Rs. 1,416 for 40 tigers, Rs. 2,164 for 124 panthers, Rs. 12 for 4 hyænas, and Rs. 136 for 587 other animals.

Rs. 3,573 in 1890–1, namely, Rs. 1,453 for 39 tigers, Rs. 1,946 for 115 panthers, Rs. 18 for 4 hyænas, and Rs. 156 for 700 other animals.

Rs. 4,194 in 1891–2, namely, Rs. 100 for 1 elephant, Rs. 1,528 for 48 tigers, Rs. 2,303 for 148 panthers, Rs. 15 for 3 hyænas, and Rs. 248 for 1,389 other animals, including wild pig, rabid dogs, etc.

A comparison of these statistics with those for 1874 and 1875, given in the first edition, indicates a decrease on the whole in the deaths of human beings from wild beasts, but an increase in those of cattle. The former may be due either to an actual diminution in the number of wild beasts or to better means being now available for the treatment of wounded persons: the latter may be due to more complete returns. The figures relating to animals for whose destruction rewards were given, point to a decrease in the number of larger animals destroyed and an increase in that of smaller and commoner ones.

The necessity for a Game Law has been pressed upon the Government by both planters and sportsmen, principally to prevent the indiscriminate destruction of useful species. A draft Regulation has accordingly been framed and is under consideration, but it is not

intended to create a monopoly in animals in a state of nature for the benefit whether of Government or of sportsmen. In the term "Game" it includes antelope, ibex, jungle-sheep, sambhar and all other descriptions of deer, bison, hares, jungle-fowl, spur-fowl, pea-fowl, partridge, quail, snipe, woodcock, bustard, florican, duck and teal, with such other animals or birds as may be added. The pursuit or killing may be prohibited of any other animals or birds whose destruction may be considered unsportsmanlike. The killing, capture, and pursuit in large numbers of any particular kinds of wild animals or birds for the sake of their skins or plumage for commercial purposes will be restricted by a system of licenses, or prohibited altogether either for a certain time or within a certain area. Fishing in any stream or lake will in like manner be controlled, together with the poisoning of the water, the use of explosive or deleterious substances therein, and the capture of fish by fixed engines and nets of a mesh below a certain size. A season in the year may be fixed in any local area for the killing or capture of game or fish; or it may be prohibited altogether in any local area for five years; or absolutely as regards mature females or young of either sex of any descriptions of game. An exception is made in the case of an owner or occupier of land, who may kill, capture or pursue, within the limits of his land, game doing damage to any growing crop.

Elephants are too valuable to be destroyed, and a special license is required to kill one, which is only permitted when an animal endangers human life or proves destructive to the crops. At the same time the Keddah department was (1873) formed for the capture of elephants. Previous to this the animals were sometimes caught in pits. The pits were about twenty feet deep, and covered with a light network of bamboos, over which was spread a covering of leaves and earth. The earth dug out was carried to some distance. These pits never succeeded during the first year, but in the second year, when they had become overgrown with grass, the elephants were often deceived by them. When an elephant was caught, rubbish was thrown into the pit, which he trod down and gradually formed a path to the top. He was then seized by the tame elephants, without whose aid it would be impossible to secure a full-grown wild elephant, and at the same time ropes were thrown over him by the Kurubas. An elephant who was less than eight months old, when thus snared, could seldom be reared in captivity, and a tusker of any size had never been entrapped. In a graphic description of the rude manner in which the pitfall system was managed, Mr. G. P. Sanderson says:—"The atrocious cruelties to which elephants were subjected by it are too horrible to think of."

The Keddah department, established by him, was highly successful in its first operations, which resulted in the capture of fifty-five elephants in June 1874. Only nine died, and a profit of Rs. 22,000 was made on the affair. The site of the keddahs was near the Biligirirangan hills in Chamrajnagar taluq, and Mr. Sanderson's account of what was at that time a novel adventure was given in the first edition.[1] Shortly afterwards he was transferred to Dacca in Bengal for elephant-catching in the Chittagong and Garo hills, where he was equally successful. On his return to Mysore, in June 1876, the great famine was setting in, and instead of catching elephants he was engaged in forming grazing blocks in the border forests for the starving cattle that flocked thither for pasture. Meanwhile the keddahs in Mysore remained in abeyance, and Mr. Sanderson, after a furlough, was again employed in Bengal. But capture by pitfalls was resorted to in 1886, under proper direction, in the Kákankóte and Begur forests, and the District Forest Officer got fifty-two elephants there in this manner in the next five years, when the system was absolutely stopped on the extension of keddahs to that part. Of those caught thirty-five survived, and a profit of Rs. 15,000 was made on the whole. Still, during the periods that the keddahs had been unused, elephants multiplied and became so daring as to ravage crops even close to towns. Mr. Sanderson's services were therefore again applied for, and in 1889 he was placed at the disposal of Mysore for five and a half years. To facilitate operations, twelve trained Kumki elephants were purchased from the Pheelkhana at Dacca, and seventeen more were imported from Burma in 1890. These twenty-nine cost over a lakh. With the exception of a few that died, they have become acclimatized to Mysore, and are in a healthy and serviceable condition.

In a fortnight from Mr. Sanderson's arrival, in July 1889, he captured a herd of fifty-one in the old keddahs constructed by him in 1877. Intimation was then received of the proposed visit of H.R.H. Prince Albert Victor, and it was desired to make a second catch, if possible, for his entertainment in November. The interesting account of how the capture of thirty-seven elephants was effected on that occasion has been contributed by Mr. Sanderson to Mr. Rees' book.[2] Keddahs were next formed near Kákankóte in 1890, and an extensive use of the telephone was introduced by Mr. Sanderson, for rapid communication from his base camp with the watch-houses at the keddah gates and various points in the jungles, the whole being connected with

[1] A full description of this and other operations will be found in his book called "Thirteen Years among the Wild Beasts of India."

[2] "The Duke of Clarence and Avondale in Southern India," chap. iv.

the telegraph station at Hunsur, whence messages could be sent all over India. Altogether, in two drives in 1889–90, and three drives in 1890-1, there were 159 elephants caught, and the greater number were sold at Nanjangud, Palghat, and Tellicherry. Excluding the large initial outlay for Kumki elephants and trained hands from the north, with special charges connected with the Royal visit, the expenditure was fairly covered by the receipts, while the stockades, with live and dead stock, remained for future use at a moderate cost for up-keep. In 1891-2 there were two drives, resulting in the capture of seventy-five elephants. Sales were effected at Paschimaváhini and at Haidarabad in addition to the places before mentioned. That the expenditure was much in excess of the receipts was greatly owing to cost of additional telephone materials and instruments. In May, 1892, Mr. Sanderson died. Since then Mr. K. Shamiengar, for a short time his assistant, has been in charge of the keddahs. In two drives in 1892-3[1] and two drives in 1893-4 he was successful in capturing 120 elephants, of which twenty-one died. The disposal of the remainder still left a deficit on the department of about Rs. 22,000. But the network of telephones has been so skilfully laid, both in the Kákankóte and Chamrajnagar forests, as practically to ensure the ultimate capture of every elephant that passes within certain limits, and the expenses will be recouped.

Elephants have of late years become troublesome in the Shimoga and Kadur Districts, destroying sugar-cane and paddy crops, and injuring the areca-nut gardens. Attempts to stop them by shooting some were made, but proved ineffectual. The Keddah department are therefore endeavouring to capture some of the herds, which are small and scattered, in temporary stockades.[2] The effect of the inroads of elephants has been to drive the field-watchers to the trees, and this has left an opening for wild pig to do more mischief to the crops than before, when the watchers were on the spot to scare them away.

Crops are also liable to considerable damage at times from rats. In the latter months of 1878 something like a plague of rats appeared, especially in the Chitaldroog District, and committed great havoc in the cotton and rice crops of individual villages. Certain kinds of field rat regularly store up a good deal of grain in their burrows near the embankments of fields, which Woddars and various wandering tribes dig up when the ground is out of cultivation and help themselves to the grain.

[1] At the end of 1892 the Viceroy, the Marquess of Lansdowne, witnessed the drive.

[2] A capture of sixty elephants near Sakrebail has now (November, 1894) been announced.

No one who has travelled much over the Province, especially in the wilder and more secluded tracts of country, but must have noted the immense variety and beauty of the feathered tribes. The naturalist and the sportsman alike will, it is hoped, find every familiar acquaintance included in the following list.[1] It may perhaps be noted that the ostrich has laid eggs and hatched young in the Maharaja's menagerie at Mysore, but they did not live long.

Aves—*Hakki.*

Passeres.

Corvidæ—Crows—*Káki*, *Kági*.

Corvus macrorhynchus	Jungle crow
Corvus splendens	Indian house-crow
Dendrocetta rufa	Indian tree-pie
Parus atriceps ...	Indian grey tit
Parus nuchalis ...	White-winged black tit
Machlolophus haplonotus	Southern yellow tit

Crateropopidæ.

Argya caudata ...	Common babbler
Argya malcolmi...	Large grey babbler
Argya subrufa ...	Large rufous babbler
Crateropus canorus	Jungle babbler
Crateropus griseus	White-headed babbler
Pomatorhinus horsfieldi	Southern scimitar babbler
Dumetia albigularis	Small white-throated babbler
Pyctorhis sinensis	Yellow-eyed babbler
Pellorneum ruficeps	Spotted babbler
Rhopocichla atriceps	Black-headed babbler
Myophoreus horsfieldi	Malabar whistling thrush
Larvivora brunnea	Indian blue chat
Brachypteryx rufiventris	Rufous - bellied short-wing
Zosterops palpebrosa	Indian white-eye
Ægithina tiphia...	Common iora
Chloropsis jerdoni	Jerdon's chloropsis
Irena puella ...	Fairy blue-bird
Hypsipetes ganeesa	South-Indian black bulbul
Molpastes hæmorrhous	Madras red-vented bulbul
Otocompsa fuscicaudata	Southern red-whiskered bulbul
Pycnonotus gularis	Ruby - throated bulbul
Pycnonotus luteolus	White - browed bulbul
Micropus phæocephalus	Grey-headed bulbul

Sittidæ—Nuthatches.

Sitta castaneiventris	Chestnut - bellied nuthatch
Sitta frontalis ...	Violet-fronted blue nuthatch

Dicruridæ—Drongos.

Dicrurus ater ...	Black drongo (king-crow)
Dicrurus longicaudatus	Indian ashy drongo
Dicrurus cærulescens	White - bellied drongo
Chaptia ænea ...	Bronzed drongo
Chibia hottentotta	Hair-crested drongo
Dissemurus paradiseus	Larger rocket-tailed drongo

Sylviidæ—Warblers.

Acrocephalus stentoreus	Indian great reed-warbler
Acrocephalus dumetorum	Blyth's reed-warbler

[1] Taken from the volumes on Birds by E. W. Oates, in the *Fauna of British India*.

Acrocephalus agricola	Paddy-field reed-warbler
Cisticola erythrocephala	Red-headed fantail-warbler
Cisticola cursitans	Rufous fantail-warbler
Franklinia gracilis	Franklin's wren-warbler
Franklinia buchanani	Rufous-fronted wren-warbler
Schœnicola platyura	Broad-tailed grass-warbler
Chætornis locustelloides	Bristled grass-warbler
Arundinax aëdon	Thick-billed warbler
Hypolais rama ...	Sykes's tree-warbler
Sylvia jerdoni ...	Eastern orphean warbler
Sylvia affinis ...	Indian lesser white-throated warbler
Phylloscopus affinis	Tickell's willow-warbler
Acanthopneuste nitidus	Green willow-warbler
Acanthopneuste viridanus	Greenish willow-warbler
Acanthopneuste magnirostris	Large-billed willow-warbler
Prinia socialis ...	Ashy wren-warbler
Prinia inornata ...	Indian wren-warbler
Prinia jerdoni ...	Southern wren-warbler

Laniidæ—Shrikes—*Kukkati.*

Lanius vittatus ...	Bay-backed shrike
Lanius erythronotus	Rufous-backed shrike
Lanius cristatus ...	Brown shrike
Hemipus picatus	Black-backed pied shrike
Tephrodornis sylvicola	Malabar wood-shrike
Tephrodornis pondicerianus	Common wood-shrike
Pericrocotus flammeus	Orange minivet
Pericrocotus peregrinus	Small minivet
Pericrocotus erythropygius	White-bellied minivet
Campophaga sykesi	Black-headed cuckoo-shrike
Graucalus macii...	Large cuckoo-shrike
Artamus fuscus ...	Ashy swallow-shrike

Oriolidæ—Orioles.

Oriolus kundoo ...	Indian oriole
Oriolus melanocephalus	Indian black-headed oriole

Eulabetidæ—Grackles or talking-mynas.

Eulabus religiosa	Southern grackle

Sturnidæ—Starlings and mynas.

Pastor roseus ...	Rose-coloured starling
Sturnia blythii ...	Blyth's myna
Temenuchus pagodarum	Black-headed myna
Acridotheres tristis	Common myna
Æthiopsar fuscus	Jungle myna

Muscicapidæ—Flycatchers.

Siphia parva ...	European red-breasted fly-catcher
Cyornis pallidipes	White-bellied blue flycatcher
Cyornis rubeculoides	Blue-throated fly-catcher
Cyornis tickelli ...	Tickell's blue fly-catcher
Stoparola melanops	Verditer flycatcher
Alseonax latirostris	Brown flycatcher
Alseonax ruficaudus	Rufous-tailed fly-catcher
Ochromela nigrirufa	Black-and-orange flycatcher
Culicicopa ceylonensis	Grey-headed fly-catcher
Terpsiphone paradisi	Indian paradise fly-catcher
Hypothymis azurea	Indian black-naped flycatcher
Rhipidura albifrontata	White-browed fan-tail flycatcher

Turdidæ—Chats, Robins, Thrushes, &c.

Pratincola caprata	Common pied bush-chat
Pratincola maura	Indian bush-chat
Ruticilla rufiventris	Indian redstart
Thamnobia fulicata	Black-backed Indian robin
Copsychus saularis	Magpie robin
Merula nigripileus	Black-capped black-bird
Geocichla wardi...	Pied ground-thrush

Geocichla cyanotus	White - throated ground-thrush
Petrophila cinclorhyncha	Blue-headed rock-thrush
Petrophila cyanus	Western blue rock-thrush

Ploceidæ—Weaver-birds.

Ploceus baya ...	Baya
Ploceus manyar ...	Striated weaver-bird
Munia malacca ...	Black-headed munia
Uroloncha striata	White-backed munia
Uroloncha malabarica	White - throated munia
Uroloncha punctulata	Spotted munia
Sporægnithus amandava	Indian red munia

Fringillidæ—Finches.

Carpodacus erythrinus	Common rose-finch
Gymnorhis flavicollis	Yellow - throated sparrow
Passer domesticus	House-sparrow
Emberiza luteola...	Red-headed bunting

Hirundinidæ—Swallows.

Chelidon urbica ...	Martin
Ptyonoprogne rupestris	Crag-martin
Ptyonoprogne concolor	Dusky crag-martin
Hirundo rustica ...	Swallow
Hirundo smithii...	Wire-tailed swallow
Hirundo fluvicola	Indian cliff-swallow
Hirundo nepalensis	Hodgson's striated swallow
Hirundo erythropygia	Sykes's striated swallow

Motacillidæ—Wagtails and Pipits.

Motacilla maderaspatensis	Large pied wagtail
Motacilla melanope	Grey wagtail
Motacilla borealis	Grey-headed wagtail
Limonidromus indicus	Forest wagtail
Anthus maculatus	Indian tree-pipit
Anthus striolatus	Blyth's pipit
Anthus rufulus ...	Indian pipit

Alaudidæ—Larks.

Alauda gulgula ...	Indian sky-lark
Mirafra cantillans	Singing bush-lark
Mirafra affinis ...	Madras bush-lark
Galerita deva ...	Sykes's crested lark
Ammomanes phœnicura	Rufous-tailed finch-lark
Pyrrhulauda grisea	Ashy - crowned finch-lark

Nectariniidæ—Sun-birds.

Arachnechthra lotenia	Loten's sun-bird
Arachnechthra asiatica	Purple sun-bird
Arachnechthra minima	Small sun-bird
Arachnechthra zeylonica	Purple-rumped sun-bird
Arachnothera longirostris	Little spider-hunter

Dicæidæ—Flower-peckers.

Dicæum erythrorhynchus	Tickell's flower-pecker
Piprisoma squalidum	Thick-billed flower-pecker

Pittidæ—Pittas.

Pitta brachyura ...	Indian pitta

As Mr. Oates' work stops here, the remainder is taken from J. A. Murray's *Indian Birds* or the *Avifauna of British India*. But, from the two works not being arranged on the same system, I have endeavoured to give the information from the latter in the order in which it is presumed it will appear in the former when completed.

Macrochires.

Cypselidæ—Swifts.

Cypselus melba ...	Alpine swift
Cypselus affinis ...	Common Indian swift
Cypselus batassiensis	Palm swift
Hirundinapus indicus	Indian giant spine-tail
Hirundinapus sylvatica	White - rumped spine-tail
Collocalia unicolor	Indian edible-nest swiftlet
Dendrochelidon coronatus	Indian crested tree-swift

Caprimulgidæ—Goat-suckers.

Caprimulgus mahrattensis	Sykes's night-jar
Caprimulgus monticolus	Franklin's night-jar
Caprimulgus atripennis	Ghaut night-jar
Caprimulgus indicus	Jungle night-jar
Caprimulgus kelaarti	Nilgiri night-jar

Pici.

Picidæ—Woodpeckers—*Mara-kuṭaka.*

Yunx torquilla ...	Common wryneck
Tiga jaranensis ...	Common large three-toed woodpecker
Brachypternus aurantias	Golden-backed woodpecker
Brachypternus chrysonotus	Lesser golden-backed woodpecker
Micropternus gularis	South-Indian rufous pecker
Gecinus striolatus	Blyth's striated green woodpecker
Thriponax hodgsoni	Great black woodpecker
Chrysocolaptes festivus	Black-backed woodpecker
Picus mahrattensis	Yellow-fronted pied woodpecker
Iyngificus hardwickii	Southern pigmy woodpecker

Coccyges.

Cuculidæ—Cuckoos—*Kōgila.*

Cuculus striatus ...	Asiatic cuckoo
Cuculus sonneratii	Banded cuckoo
Hierococcyx varius	Common hawk cuckoo
Cacomantis nigra	Indian plaintive cuckoo
Coccystes jacobinus	Pied-crested cuckoo
Coccystes coromandus	Red-winged crested cuckoo
Eudynamys honorata	Indian koel
Rhopodytes viridirostris	Small green-billed malkoha
Centrococcyx rufipennis	Common crow pheasant
Centrococcyx bengalensis	Lesser coucal
Taccocua leschenaulti	Southern sirkeer

Capitonidæ—Barbets.

Megalæma caniceps	Common green barbet
Megalæma viridis	Small green barbet
Xantholæma hæmacephala	Crimson-breasted barbet
Xantholæma malabarica	Crimson-throated barbet

Upupidæ—Hoopoes.

Upupa epops ...	Hoopoe

Meropidæ—Bee-eaters.

Merops viridis ...	Common Indian green bee-eater
Merops phillipinus	Blue-tailed bee-eater
Merops leschenaulti	Chestnut-headed bee-eater
Nyctiornis athertoni	Blue-necked bee-eater

Coraciadæ—Rollers.

Coracias indica ...	Indian roller

Alcedinidæ—Kingfishers.

Alcedo bengalensis	Little Indian kingfisher
Ceryle rudis ...	Pied kingfisher
Halcyon smyrnensis	White-breasted kingfisher
Ceyx tridactyla ...	Three-toed kingfisher
Pelargopsis gurial	Indian stork-billed kingfisher

Bucerotidæ—Hornbills.

Dichoceros bicornis	Great pied hornbill
Anthracoceros coronatus	Malabar pied hornbill
Ocyceros birostris	Common grey hornbill

Psittaci.

Psittacidæ—Parrots—*Giṇi.*

Loriculus vernalis	Indian loriquet
Palæornis torquatus	Rose-ringed paroquet
Palæornis rosa ...	Western rose-headed paroquet

Striges.

Bubonidæ—Eagle and Scops Owls.

Bubo bengalensis	Rock horned owl
Bubo nipalensis ...	Forest eagle owl
Scops pennatus ...	Indian scops owl
Scops malabaricus	Malabar scops owl
Carine brama ...	Spotted owlet
Ninox scutulata ...	Brown hawk owl
Glaucidium radiatum	Jungle owlet
Glaucidium malabaricum	Malabar owlet
Asio accipitrinus...	Stout-eared owl
Syrnium ocellatum	Mottled wood-owl
Syrnium indrance	Southern wood-owl

Strigidæ—Owls—*Gúbe*, *gúge*.

Strix flammea ...	Indian screech-owl
Strix candida ...	Grass-owl

Accipitres.

Vulturidæ—Vultures—*Haddu*.

Gyps indicus ...	Long-billed vulture
Pseudogyps bengalensis — rana haddu	Common brown vulture
Otogyps calvus ...	Black vulture

Falconidæ—Falcons—*dége*.

Circus pygargus ...	Montague's harrier
Circus macrurus...	Pale harrier
Circus æruginosus	Marsh harrier
Astur trivirgatus...	Crested goshawk
Astur badius ...	Brown hawk
Accipiter nisus—bannada dége	European sparrow-hawk
Accipiter virgatus —ur-chitlu	Besra sparrow-hawk
Buteo ferox ...	Long-legged buzzard
Aquila heliaca ...	Imperial eagle
Aquila vindhiana	Tawny eagle
Aquila clanga ...	Spotted eagle
Nisætus fasciatus	Crestless hawk-eagle
Nisætus pennatus	Dwarf or booted eagle
Neopus malayensis	Black eagle
Spizætus nipalensis	Spotted hawk-eagle
Spizætus cirrhatus —juṭṭu bhairi	Crested hawk-eagle
Circætus gallicus	Common serpent-eagle
Spilornis melanotis	Southern harrier-eagle
Butastur teesa ...	White-eyed buzzard
Haliastur indus—garuḍa	Maroon-backed kite (Brahmini kite)
Milvus govinda ...	Common Indian kite
Milvus melanotis	Large Indian kite
Pernis ptilonorhynchus	Honey buzzard
Baza lophotes ...	Black-crested kite
Microhierax cærulescens	White-naped pigmy falcon
Falco communis—bhaira	Peregrine falcon
Falco peregrinator —dége	Shaheen falcon
Falco juggur —giḍaga	Lugger falcon
Falco chiquera ...	Red-headed merlin
Hierofalco saker...	Cherrug falcon
Polioaetui ichthyaetus	Eastern white-tailed eagle

Steganopodes.

Pelecanidæ—Pelicans.

Pelecanus roseus...	Eastern white pelican
Phalacrocorax pygmœus	Little cormorant
Plotus melanogaster	Indian snake-bird

Herodiones.

Ciconidæ—Storks—*Baka*.

Leptopilus javanicus	Lesser adjutant
Xenorhynchus asiaticus	Black-necked stork
Ciconia leucocephala	White-necked stork

Ardeidæ—Herons—*Kokkare*.

Ardea cinerea ...	Common heron
Ardea purpurea ...	Blue heron
Herodias alba ...	Large white heron
Herodias garzetta	Little black-billed white heron
Bubulcus coromandus	Cattle egret

Ardeola grayi ...	Pond heron, paddy bird
Butorides javanica	Little green bittern
Ardetta flavicollis	Blue bittern
Ardetta cinnamomea	Chestnut bittern
Ardetta sinensis...	Little yellow bittern
Botaurus stellaris	Common European bittern
Nyctorax griseus...	Night heron

Tantalidæ.

Tantalus leucocephalus	Pelican ibis
Platalea leucorodia	Spoonbill
Threskiornis melanocephalus	White ibis

Anseres.

Anatidæ—Ducks—*Bátu.*

Sarkidiornis melanonotus	Comb duck
Nettapus coromandelianus	Cotton teal
Dendrocygna javanica	Lesser whistling-teal
Casarca rutila ...	Brahmini duck
Spatula clypeata...	Shoveller
Dafila acuta ...	Pintail
Querquedula crecca	Common teal
Fuligula cristata...	Tufted pochard

Podicipidæ—Grebes.

Podiceps minor ...	Dab-chick

Columbæ.

Treronidæ—Fruit Pigeons.

Crocopus chlorigaster	Southern green pigeon
Osmotreron malabarica	Malabar green pigeon
Carpophaga ænea	Imperial green pigeon
Carpophaga insignis	Bronze-back imperial pigeon

Columbidæ—Pigeons and Doves—*PáriváIa.*

Columba intermedia	Indian blue rock-pigeon
Turtur meena ...	Rufous turtle-dove
Turtur senegalensis	Little brown dove
Turtur risorius ...	Indian ring-dove

Gallinæ.

Pteroclidæ—Sand grouse.

Pterocles fasciatus	Painted sand grouse

Phasianidæ—Peafowl—*Navilu.*

Pavo cristatus ...	Common peacock

Megapodidæ.

Gallus ferrugineus	Common jungle-fowl
Gallus sonnerati ...	Grey jungle-fowl
Galloperdix spadiceus	Red spur-fowl
Galloperdix lunulatus	Painted spur-fowl

Tetraonidæ.

Francolinus pictus	Painted partridge
Ortygornis ponticeriana	Common grey partridge
Perdicula asiatica	Jungle bush quail
Perdicula argoondah	Rock bush quail
Microperdix erythrorhyncha	Red-billed bush quail
Coturnix communis	Large grey quail

Tinamidæ.

Turnix plumbipes	Indo-Malayan bustard quail

Geranomorphæ.

Otitidæ—Bustards and floricans.

Sypheotides auritus	Lesser florikin

Cursoridæ—Courier plovers.

Cursorius coromandelicus	Indian courier plover
Charadrius fulvus	Eastern golden plover
Lobivanellus indicus	Red-wattled lapwing
Sarciophorus bilobus	Yellow-wattled lapwing
Œdicnemus crepitans	Stone plover

Gruidæ—Cranes—*Kahva.*

Grus cinerea ...	Common crane
Anthropoides virgo	Demoiselle crane

Limicolæ.

Scolopacidæ.		Himantopus candidus	Stilt
Scolopax rusticola ...	Woodcock		
Gallinago nemoricola	Wood snipe	*Rallidæ*—Rails.	
Gallinago scolopacina	Common snipe	Porphyrio poliocephalus	Purple coot
Gallinago gallinula ...	Jack snipe	Fulica atra ...	Bald coot
Machetes pugnax ...	Ruff	Porzana bailloni ...	Pigmy rail
Actitis ochropus ...	Green sand-piper	Porzana maruetta ...	Spotted crake
Totanus glareola ...	Wood sand-piper	Gallinula chloropus ...	Moorhen
Totanus calidris ...	Red shank	Gallinula phœnicura ...	White-breasted water-hen
Recurvirostra avocetta	Avocet		

Gaviæ.

Laridæ.		Rhynchops albicollis	Indian skimmer
Sterna melanogastra	Black-bellied tern		

The remaining orders—Tubinares and Pygopodes—I have not succeeded in identifying. Perhaps some of the entries under Coccyges should come here.

REPTILES.

"The few crocodiles that are found in the Mysore rivers very rarely attack people (says Mr. Sanderson[1]); and fishermen, who pay no heed to them, have told me that if they come upon a crocodile whilst following their employment, it will skulk at the bottom and not move though handled, apparently believing it escapes observation."

The loss of life from snake-bite may be gathered from the following particulars:—In 1889-90 there were 97 human beings and 32 cattle killed by snakes; in 1890-1 the numbers were 77 and 8; in 1891-2 they were 109 and 31. The amounts paid in these three years as rewards for the destruction of venomous snakes were Rs. 678 for 2,579, Rs. 690 for 2,589, and Rs. 664 for 2,873 respectively. So far as the figures go, the loss of life, as compared with what was reported in the first edition fifteen years ago, is certainly diminished, and this may possibly be the result of the improved sanitary arrangements in towns and villages, whereby much of the rubbish around dwelling-houses which formerly gave cover to snakes is now regularly cleared away.

Reptilia.[2]

Emydosauria—Crocodiles.

Crocodilidæ—Crocodiles—*Mosale.*

Gavialus gangeticus ... ... Crocodilus palustris

Chelonia—Tortoises and Turtles.

Trionychidæ—Tortoises—*Áme.*

Trionyx leithii

Testudinidæ.

Testudo elegans ... Hál áme ... ... Nicoria trijuga ... Muriki áme

[1] "Thirteen Years among the Wild Beasts of India," p. 14.

[2] Compiled from the volume by G. A. Boulenger in the *Fauna of British India.*

Squamata—Lizards and Snakes.

Geckonidæ—Geckos—*Oti, óti-kāṭa.*

Gymnodactylus nebulosus	Hemidactylus frenatus	
Gymnodactylus deccanensis...	Hemidactylus gleadovii	Halli
Gonatodes mysoriensis	Hemidactylus maculatus	
Gonatodes gracilis	Hemidactylus triedrus	
Hemidactylus reticulatus	Hemidactylus costæi	Halli

Eublepharidæ.

Eublepharis hardwickii

Agamidæ.

Sitana ponticeriana	Calotes ellioti
Calotes versicolor ... O'ti	Charasia dorsalis

Varanidæ—Lizards—*Halli.*

Varanus bengalensis... U'saravalli

Lacertidæ.

Cabrita leschenaultii... ... ... Ophiops jerdonii

Scincidæ—Skinks—*Háva rāṇi.*

Mabina carinata	Lygosoma albopunctatum
Mabina macularia	Lygosoma punctatum

Chamæleontidæ—Chameleons—*Gósumbe.*

Chamæleon calcaratus

(Ophidia)

Typhlopidæ—Worm-like snakes.

Typhlops braminus ... ... Typhlops acutus

Boidæ—Pythons or boas.

Python molurus ... Dásara hávu	
Gongylophis conicus...	Eryx johnii[1]

Uropeltidæ—Earth snakes.

Rhinophis sanguineus	Silybura phipsonii
Silybura ellioti	Pseudoplectrurus canaricus

Colubridæ—Snakes—*Hávu.*

Xylophis perroteti	Tropidonotus piscator .	Nír hávu
Lycodon striatus	Tropidonotus plumbicolor	Hasur hávu
Lycodon aulicus	Helicops schistosus	
Hydrophobus nympha	Dipsas trigonata	
Ablabes calamaria	Dryophis perroteti	
Simotes arnensis	Dryophis mycterizans	Hasur núlige
Oligodon venustus		
Oligodon subgriseus...	Hypsirhina enhydris ...	Nír hávu
Zamenis mucosus[2] ... Kére	Callophis nigrescens	
Zamenis fasciolatus	Bungarus fasciatus	
Coluber helena	Bungarus cæruleus[3] ...	Gódi nágara
Dendrophis pictus	Naia tripudians[4] ...	Nágara hávu
Tropidonotus stolatus	Naia bungarus	

Viperidæ—Vipers.

Vipera russellii ... Kolaku-mandala Echis carinata... ... Kallu hávu

[1] The so-called two-headed snake. [2] Rat snake or whip snake (*dhámin* in Hindi).
[3] Known as the krait. [4] The cobra or cobra de capello.

Batrachia.

Ranidæ—Frogs—*Kappe.*

Rana hexadactyla	Rana limnocharis
Rana cyanophlyctis[1]	Rana breviceps
Rana tigrina	Rana beddomii

Engystomatidæ.

Microhyla ornata	Callula variegata
Callula pulchra	Cacopus systema

Bufonidæ—Toads.

Bufo melanostictus

FISHES.

"The rivers and artificial lakes in Mysore abound with excellent fish, but I have never succeeded in getting much sport with the fly (writes Mr. Sanderson).[2] They may be taken by spinning or ground fishing—the latter chiefly at night. There is now in the Museum at Bangalore the head and skin of a fish—a species of carp or *mahseer*, and called *bili* or silver-fish in Canarese—caught by me in 1871 in the Lakshmantirtha, which measured sixty inches in length and thirty-eight in girth. The circumference inside the mouth when caught was twenty-four inches. I was unfortunately unable to weigh this fish, but I estimated it by rough tests at not less than 100 lbs. I have seen much larger fish, without doubt upwards of 150 lbs., caught by natives, chiefly by netting during the months when the rivers are low. At such times two or three villages of professional fishermen will combine to net a single large fish known to be a prisoner in a pool during the hot weather. The pool may be a hundred yards long and broad, and the water fifteen feet deep, with cavernous rocks capable of sheltering fish; but by joining their nets, and diving and working for two or three days, they seldom fail to secure the prize."

The following list has been compiled from Dr. Day's book.[3] A number of native names of fish, not identified, will be found under each District in Vol. II.

Pisces—*Mínu.*

Teleostei.

Siluridæ—Cat-fishes.

Clarias magur	Marave—Black cat-fish		
Saccobranchus fossilis	Chélu mínu—Yellow catfish, scorpion fish		
Wallago attu	Vale, ole		
Callichrous bimaculatus[4]	Godale		
Pseudentropius atherinoides	Bále	Ladyfish	
Macrones vittatus[5]	Geralu		
Macrones keletius			
Rita hastata			

[1] (?) The chunam or flying frog. [2] *Op. cit.* [3] In the "Fauna of British India."

[4] *Puffta* in Hindustani: called the "butter-fish" by Europeans in Bengal.

[5] Dr. Day has the following note:—"This fish is termed 'the fiddler' in Mysore:

Cyprinidæ—Carps.

Lepidocephalichthys thermalis	
Nemachilus guentheri	
Nemachilus semiarmatus	
Nemachilus denisonii	
Nemachilus beavani	
Discognathus lamta	Pandipakke (korafi kaoli, Hind.)
Labeo fimbriatus	
Labeo calbassu ...	Kari mínu
Labeo kontius	
Cirrhina cirrhosa	
Cirrhina reba	
Matsya argentea	
Barbus chagunio	
Barbus sarana ...	Gid pakke
Barbus chrysopoma	
Barbus micropogon	
Barbus carnaticus	Gid pakke (Giddi kaoli, Hind.)
Barbus tor[1]	
Barbus carmuca	
Barbus melanampyx	
Barbus parrah ...	(Kacha korava, Hind.)
Barbus dorsalis ...	Mar pakke
Barbus kolus	
Barbus melanostigma	
Barbus puckelli	
Barbus arulius ...	aruli
Barbus ticto ...	(Kaoli, Hind.)
Barbus vittatus	
Chela argentea	White carp
Chela boopis	
Chela clupeoides	

Percidæ—Perches.

Ambassis nama	
Ambassis ranga	

Nandidæ.

Badis buchanani	
Badis dario	
Nandus marmoratus	
Pristolepis marginata	
Pristolepis malabarica	

Gobiidæ.

Gobius giurus ...	Abbroni

Rhynchobdellidæ.

Mastacembalus armatus	Thorny-backed

Ophiocephalidæ.

Ophiocephalus marulius	Hurvina maral
Ophiocephalus leucopunctatus	Bili korava
Ophiocephalus striatus	Kuchina maral
Ophiocephalus guchua	Mar korava
Ophiocephalus punctatus	Bálu, béli korava

Insects.

Of the countless hosts and varieties of the insect world, no pretension can be made to give anything like a detailed list. The leading families alone are indicated. Of spiders, beetles, and the singular mantis tribe, there is a great profusion; as also of the gayest butterflies and richest moths. The bee (except in parts of the Malnád) is never domesticated, but large quantities of honey are obtained by jungle tribes from the woods and caves of various parts. White ants swarm in every soil, and their ravages are relentless. On one or two evenings following on the first heavy showers of the monsoon, which

I touched one which was on the wet ground, at which it appeared to become very irate, erecting its dorsal fin and making a noise resembling the buzzing of a bee, evidently a sign of anger. When I put some small carp into an aquarium containing one of these fishes it rushed at a small example, seized it by the middle of its back, and shook it like a dog killing a rat; at this time the barbels of the *Macrones* were stiffened out laterally like a cat's whiskers."

[1] The mahseer of sportsmen.

have softened the parched and dried-up ground, their winged nymphs issue in gauzy clouds to enjoy a brief flight; and then, losing their wings, which strew the whole surface of the ground, crawl about in the form of maggots, a prey to every bird of the air and every creeping lizard. They are also gathered and cooked for food by the lower orders. The tiny mango-flies or eye-flies, which swarm during the hours of sunlight, especially in the mango season, are a well-known source of annoyance. To them is attributed a kind of ophthalmia, termed "sore eyes," to which children especially are subject; but whether the flies originate the affection or merely convey the contagious matter from eye to eye is doubtful. Among insect pests the coffee-borer has already been mentioned (p. 168). At the beginning of 1878 a new danger appeared in vast flights of locusts, which threatened to destroy the first early crops that succeeded the great famine. But, fortunately, the damage they did was far less than the most sanguine could have expected.[1]

Annelida—*Suctoria.*

Hirudinidæ ..	jigaṇi ...	Leeches ...	Abound at the Gersoppa Falls and in all forests during the wet season.

Arachnida.

Araneidæ, Lycosidæ, Mygalidæ ...	jáḍa ...	Spiders ...	Very numerous and of great variety.
Scorpionidæ	chéḷu ...	Scorpions ...	There are three species; the large black rock-scorpion (*mandragabbe*), the large red field scorpion, and the little red house scorpion. The sting is very rarely fatal, but often causes great pain for a time.
Acaridæ ...	... ...	Mites	
Sarcoptes scabiei	kajji huḷa	Itch acarus	This loathsome affection is very common, even among the upper classes of natives.
Ixodidæ ...	uṇṇe ...	Ticks	

[1] A flight of locusts which passed over Mandya on the evening of the 16th of May, 1800, is thus described by Buchanan:—"It extended in length probably about three miles; its width was about a hundred yards, and its height fifty feet. The insects passed from west to east in the direction of the wind, at the rate of six or seven miles an hour. The whole ground, and every tree and bush, was covered with them, but each individual halted for a very short time on any one spot. In an hour after the flock had passed few were to be discovered in the neighbourhood of the town. The noise of this immense number of insects somewhat resembled the sound of a cataract. At a distance they appeared like a long, narrow, red cloud near the horizon, which was continually varying its shape. The locusts were as large as a man's finger, and of a reddish colour." A flight the previous year had eaten up all the young Jola: the present flight settled at a village to the eastward of Mandya, and did the same.

Myriapoda.

Iulidæ.			
Iulus indus ...	bandi basava	... ..	Very common.
Scolopendridæ ..	jari ...	Centipedes	There are several species, differing in size and colour; the largest is of a greyish colour with crimson legs; of the smaller kinds, one is black and another of a sandy or ashy colour.
Polydesmidæ			

Insecta.

Anoplura.			
Pediculus	hénu ...	Louse ...	Every one must be familiar with the sight of native women removing this unpleasant occupant from one another's hair. The same operation may be constantly witnessed among the common monkeys.
Hemiptera.			
Scutellera			
Phlæa			
Cimex	tigaṇi ...	Bug	
Neides			
Cicada			
Fulgora	minchu huḷa	Firefly	
Aphis	... ...	... ...	These are of great variety and beauty on different kinds of trees.
Coccus	... ...	Cochineal insect	
C. lacca ...	aruga ...	Lac insect	
Kermes	... ...	Gall insect	
Orthoptera.			
Mantis religiosa ...	... ...	Praying mantis	There are numerous species, of various sizes and colours: some appear to have the power of changing colour like a chameleon.
Phasma	... ...	Animated straw	
Phyllium	... ...	Leaf-like insects	Several of these are of great beauty and curiosity. One is an exact counterpart of the mango leaf.
Gryllus .	jille	Crickets ...	Very numerous and various. The stridulation of the tree cricket and the mole cricket are at times, in certain localities, almost deafening.
Locusta ...	patanga, miḍite .	Grasshoppers	
Acridium ...	miḍite, ṭoppu ...	Locusts ...	These insects are here comparatively harmless.
Blatta ...	jirle	Cockroaches	

Neuroptera.

Libellula ...	túni huḷa ...	... Dragon fly	
Ephemera			
Myrmeleon	... ...	... Ant lion ...	. Very common.
Termes ...	geddalu ...	... White ants	... Universal : their nest or ant-hill is called *hutta* : the winged nymphs, which issue in swarms in the rains, are called *íchalu huḷa.*

Aphaniptera.

Pulex irritans	chikaṭa ...	... Common flea	

Diptera.

Culex ...	gungaru ...	... Gnat	
Tipula ...	... ...	... .	... Daddy longlegs.
Culex ...	soḷḷe ...	... Mosquito...	... A well-known pest.
Musca ...	noṇa ...	... Fly ...	... All varieties.
		Mango fly or eye fly	Very numerous at Bangalore in the mango season. It is no bigger than a flea.

Lepidoptera.

Rhopalocera	chitte, kapate,[1] pátragitte,[2] sítádevi huḷa	Butterflies	... A very great variety :— Nymphalidæ, 34 species : Lycænidæ, 28 species;[3] Papilionidæ, 16 species.[4]
Heterocera	nusi ...	... Moths	
Bombyx mori	réshmi huḷa	... The caterpillar is the silkworm.	

Hymenoptera.

Ichneumon			
Formica ...	iruve ...	... Ants ...	... Abound in every part in great variety.
Vespa ...	kaṇajada huḷa	... Wasp and hornet	
Apis ...	jénu huḷa	.. Honey bee	
Xylocarpa	jirangi ...	... Carpenter bee	
Bombus	... ...	... Bumble bee	

Coleoptera.

Scarabæus	dumbe ...	... Beetles ..	... Beetles abound in great profusion, and of much beauty of form and colouring.
Buprestis ...	hasar dumbe	... Green beetles	.. The wings are used for the decoration of slippers, &c.
Carabus			
Copris ...	... ...	... Dung beetle	... Very common on every road.

[1] The plain or sober-coloured ones. [2] Those with gay and variegated colours.
[3] From Marshall and de Nicéville's work *The Butterflies of India* (no more published). [4] From Donovan.

Of *insects useful to man* the most important are the silk-producing worms, the lac and cochineal insects, and bees.

Silkworm.—The fatality which attended the rearing of silkworms for some years, and checked an industry that was a source of livelihood to large numbers of Muhammadans, is noticed in Vol. II. ; together with the efforts that were made at the time, though ineffectually, to re-establish a healthy race of insects, more especially by Signor de Vecchj, in connection with a Silk Filature Company at Kengeri, Bangalore District. The industry has now revived and is again flourishing, owing to the comparative immunity of the worms from disease. Silk is produced in all the taluqs of the Bangalore District, as well as in Chik Ballapur and Tirumakudal Narsipur taluqs.

Tasar Silkworm.—The domestication of the tasar silkworm was advocated some years ago, as the cocoons have been found in the jungles around Nandidroog and Devaráydroog. The following notes on the subject are taken from Captain Coussmaker's reports at the time :

There are four ways in which the tasar silk cocoons may be procured, all of which I myself have successfully tried. Firstly :—During the hot weather, when the leaf is off; then the cocoons are easily discernible hanging like berries from the twigs ; men might then go into the jungles and collect them. Secondly :—From June to October the caterpillars are large and commit much ravage on the trees. Their presence then is easily detected by the denuded appearance of the twigs, and by their droppings under the tree (the large caterpillars do not wander at all, but eat steadily along one twig, devouring leaf after leaf) ; men might then go and collect them all on to one tree, beneath which they themselves might build a hut and live, scaring away birds, squirrels, &c. Both of these methods are practised in the Bengal Presidency. Thirdly :—The moths can be paired when they issue from the cocoons, and the caterpillars reared from the eggs. Fourthly :—When the moths issue from the cocoons, the females can be tied up to certain trees and the males liberated there, when, if any of these latter be not in full vigour, wild males may come and pair with the females, which can then be removed.

In hatching out and rearing the caterpillars there is no difficulty ; twigs of whatever tree is most convenient to use should be put into earthen pots full of earth and water, the mouths of which should, as recommended by Captain Hutton, be closed with cotton rammed in, to keep the twigs steady and to prevent the caterpillars crawling down into the water and drowning themselves. For the first fifteen days, during which the caterpillars wander about much, the pots should be kept each in a small wooden frame, the opposite sides of which should be covered with mosquito net or fine bamboo chicks, so that the light and air may penetrate freely and the worms not escape. After that time the pots should be put upon shelves or tables with

the twigs interlacing so as to form a long hedge, and left uncovered. The caterpillars should be kept there until they change their skins for the last time, when they may be put on to twigs suspended over bamboos hung from the ceiling; and here they will spin their cocoons, which may be gathered every day when the twigs are renewed. In all cases the twigs should be changed every day—those that are old and stripped, thrown away; those that the caterpillars are on, should be put near the fresh twigs, and they will crawl off of their own accord. It is advisable to water them two or three times a day from a watering-pot with a very fine rose; give them a gentle shower as it were: this is refreshing both to caterpillars and twigs. I have noticed that in changing their skins, it sometimes happens that the old skin does not come off freely. I think that a moderate amount of moisture is essential to their well-doing. In this way, with the least possible trouble and expense, any amount of these caterpillars can be reared; ordinary precautions being taken to protect them from their numerous enemies, by stopping rat-holes, sweeping away cobwebs, nailing wire netting or bamboo chicks over the windows, which should be kept open by night and day.

I am glad to see that Mr. Massa reports so favourably upon the specimens of tasar silk cloth. I myself am greatly indebted to Mr. R. S. De Souza, the jailor at Dharwar, at whose suggestion the twilled variety was wove, and it was through his ready assistance and careful supervision that the specimens were obtained.

Experiments have also been made with the Eri silkworm from Assam, which feeds on the leaves of the castor-oil plant; and with a variety of gold-lace cocoons found in the jungles of Hassan.

Cochineal.—The introduction of the cochineal insect was proposed as a partial remedy for the failure of the silk industry. Regarding it the following extract is taken from a memorandum by Colonel Boddam:—

One hundred years ago the Hon'ble Court of Directors attempted to introduce cochineal culture into India, and offered a reward of £2,000 to any one successfully importing it. In 1795 a naval officer secretly imported some cochineal insects from Brazil, which were distributed over India, and cultivation fostered by the Court of Directors. After expending two lakhs of rupees it was discovered that the wrong insect had been got. There are two sorts of cochineal insect—the *silvestre* or wild one, and the *grana-fina* or domesticated one; the latter only producing the cochineal of commerce. It unfortunately was the *silvestre* that had been imported, and was not worth the trouble of cultivating. The *grana-fina* has never been successfully imported. Besides getting the true insect, the proper cactus for its support is necessary; the common *opuntia ficus indica*, or prickly-pear, will not suit the domesticated kind. It must be *opuntia cochinellifera* or *opuntia tuna*. Referring to Kew as to the correct cactus, authorities differed. After much correspondence this point was settled, and I got the true *cactus cochinellifera*, compared the plants so named growing at the Botanical Gardens in Calcutta,

Madras and Bangalore, and found them identical, corresponding with the description of cactus at Teneriffe.

After reviewing all that has been done, the writer in Watt's Dictionary says:—"The first and most natural step towards the introduction into India of a commercial industry in cochineal should be the thorough investigation of the races of cocoons already existing in the country and the plants on which they feed."

Lac Insect.—The lac insect is found in several parts, as near the Nandi hills. The tree on which it feeds is the *jálári* (*shorea talura, Roxb.*) All the trees, says Buchanan, are small, not exceeding eight or ten feet in height; and their growth is kept down by the insect and its managers; for this size answers best. The tree, left to itself, grows to a large size and is good timber. For feeding the insect, it thrives very well in a dry barren soil; and is not planted, but allowed to spring up spontaneously as nature directs. In Kártika, or from about the middle of October to the middle of November, the *lac* is ripe. At that time it surrounds almost every small branch of the tree, and destroys almost every leaf. The branches intended for sale are then cut off, spread out on mats, and dried in the shade. A tree or two that are fullest of the insects are preserved to propagate the breed; and of those a small branch is tied to every tree in the month Chaitra, or from about the middle of March to the middle of April; at which time the trees again shoot out young branches and leaves. The *lac* dried on the sticks is sold to the merchants. This is what is called *stick-lac*, which, after the dye has been extracted, is formed into *seed* and *shell-lac*.

Bees.—The bees are described by Buchanan as of four kinds. That from which most of the honey and wax is procured is called *hej-jénu-hula*. This is a large bee, which builds under projections of the rocks or in caverns. A large nest gives eight seers of honey = 4·85 lb., and three seers of wax = 1·82 lb. A small hive gives about one-third of this quantity. The honey is gathered twice a year, in A'shádha and Mágha, or in the month following the summer solstice and the second after that of winter. Some people of the Bedar caste make the collecting of honey and wax a profession, and it is one attended with much danger. Having discovered a hive, some of them kindle a fire under the rock, and throw on it the leaves of the *cassia fistula* and of the *puleseri*, which emit a smoke so acrid that nothing living can endure it. The bees are forced to retire; and some others of the Bedar, so soon as the smoke subsides, lower down by a rope one of their companions, who with a pole knocks off the nest and is immediately drawn up again;

for if he made any delay the bees would return, and their stinging is so violent that it endangers life. In order to fortify him against the sharp points of rocks, and against injury from the rope which passes round his chest, the adventurous Béda is secured before and behind by several folds of leather.

The bee that produces the next greatest quantity of honey is called the *kaḍḍi* or *chiṭṭu-jénu-huḷa*; that is, stick or small honey. This bee is very small, and builds around the branch of a tree a comb of an oblong shape and sharpened at both ends. It is found at all seasons, but is in the greatest perfection at the same time with the other. The honey is of the finest quality; but the whole comb seldom weighs more than two seers, or 1·2lb. This bee does not sting, and is readily driven away by a twig switched round the comb.

The *tuḍuve* is a bee of which the honey is of an excellent quality, but rarely procured; for it generally builds deep in the crevices of rocks, where it is totally inaccessible. Sometimes, however, it is found in hollow trees, and one hive will give from twenty to twenty-five seers of honey, or about twelve or fifteen pounds; but the quantity of wax is in proportion small. This is a large bee; but it very seldom stings those who plunder its hive.

The *toriga* is a very small bee, that seldom stings. It takes possession of the deserted nests of the white ants, which in this country are very numerous in the wastes of red soil such as is usually cultivated for rágí. Of this stiff earth the white ants raise hills resembling the stump of a tree, which are from four to six feet high, very hard, and able long to resist the heaviest rain. These, when deserted, most commonly become the lurking-places of snakes; but sometimes give shelter to the *toriga* bee. Its nest is therefore easily accessible; but it is very small, and contains only about a seer of honey and half a seer of wax.

DOMESTIC ANIMALS.

Horses.—The only native breed of horses is, as in most parts of India, an ill-shaped, vicious *tattu*; as a rule not exceeding twelve hands in height.[1] In spite of the pains which Haidar and Tipu took to improve the Mysore breed by importation, even their far-famed cavalry were as a rule badly mounted. The former Silahdár horses, sprung generally from Arab sires and Mahratta dams, were probably fair specimens of the class of animal which supplied the Muhammadan armies. These were extremely weedy and deficient in barrel, but would stand a great deal of work. A few stallions have always been maintained by Government; but the Silahdárs generally used to purchase their horses from private breeders, and their demand was the sole incentive to breeding. Of late years a hardy race of ponies has come into use for drawing the small two-wheeled conveyance called a *jutka*, which does duty for a native cab. The ponies are doubtless of Mahratta breed, and capable of great endurance. To improve the general breed of horses six superior stallions were obtained in 1889 from the Military Department and stationed at headquarters of Districts. The following year four fresh stallions and a pony mare were procured and the remaining Districts supplied. But so far the demand for their services has been rather limited.

A horse-breeding establishment is kept up by Government at Kunigal (removed there many years ago from Closepet) for supplying the Silahdárs with suitable mounts. In 1886 there were seven Arab stallions and one Australian; in 1891 the Arab stallions had risen to eight in number, and the Australian to three. During the intervening five years 271 foals were bred at the Stud, and, including stock of previous years, 246 were passed into the ranks. In addition to these, seventy were cast and sold as unfit or undersized, sixty-two died, and three were destroyed. The number remaining on hand in the Stud Farm in 1891 was 154.

Mules.—It is said that Tipu Sultan introduced some fine asses from Arabia for the purpose of breeding mules; but the prejudices of his subjects were so strong that nothing could be done. A private scheme

[1] Writing in 1803, Colonel Welsh says:—"Colar is so famous for a breed of vicious horses that all over the peninsula, whenever a horse turns out ill, he is called Colarie."

for a regular system of breeding these useful animals, so invaluable for transport, has been lately put before the Mysore Government for assistance, but nothing definite has so far been decided on.

Asses.—Every washerman keeps three or four females and a male. The superfluous males are sold to various kinds of petty traders, and people who transport salt and grain. The breed is very small, no pains being taken to improve it; nor indeed to keep it from growing worse. Some are of the usual ash-colour, whilst others are almost black, in which case the cross on their shoulder disappears. These are not varieties as to species; for black individuals have sometimes ash-coloured colts, and, on the contrary, black colts are sometimes produced by ash-coloured dams. The asses get nothing to eat except what in the intervals of labour they can pick up about the village. When the crop is on the ground they are tied up at night; but at other seasons they are allowed to roam about, and in order to prevent them from wandering too far their fore-feet are tied together. The males are never castrated, and the best are always sold off by the washermen, which are the principal causes of the degeneracy of the breed. At three years of age the females begin to breed, and some have every year a colt, while others breed once only in three years. An ass's burthen is reckoned about 76 lbs; with which they will daily travel about seven miles.

Horned Cattle.—The principal breeds of horned cattle in Mysore are the Amṛit Mahál, Mádésvaran Beṭṭa, the Kánkánhalli, and the village cattle. Almost all other cattle seen in the country are importations or crosses between the above-mentioned breeds.

The *Amṛit Mahál*,[1] literally Milk Department, is an establishment for the breeding of a race of cattle peculiar to the country of Mysore and famous for its utility for military purposes. The establishment was founded at some time during the Hindu government, with special privileges as regards grazing; but its maintenance for the special purpose of supplying draught cattle for artillery is due to Haidar Ali. He is reported to have introduced a breed of cattle from the Trichinopoly country, by a cross between which and the indigenous breed of Mysore was produced the Hallikar breed, which is considered the best in the whole establishment. Great doubt exists as to what the breed imported was, but general tradition points to the small Brahmani bulls, which to this day are noted for their endurance and fast trotting powers.

"It was this establishment," wrote Sir Mark Cubbon, "which enabled

[1] The particulars are taken from a pamphlet containing the history of the Amṛit Mahál, compiled from the Records of the Department by Captain M. A. Rowlandson, and one on Hunsur, by Dr. Gilchrist; with corrections by Major McInroy, the officer formerly in charge, to whom I was indebted for them.

Haidar Ali to march 100 miles in two days and a half to the relief of Chidambram, and after every defeat to draw off his guns in the face of his enemies; which enabled Tipu Sultan to cross the peninsula in one month for the recovery of Bednur, and to march sixty-three miles in two days before General Medows; which, in later times, enabled General Pritzler to march 346 miles in 25 days in pursuit of the Peshwa: and which enabled General Campbell, after the failure of his Bengal equipments, to advance upon Ava and bring the war to a favourable termination. It was also this establishment which enabled the Duke of Wellington to execute those movements of unexampled rapidity which are the admiration of every military man, and in consideration of whose services he recommended it to protection in a letter addressed at the close of the war to the Commander-in-Chief." Allusions in the Wellington Despatches show that the Great Duke often, during the Peninsular War in Spain, regretted that he had not the assistance of the Amṛit Mahál cattle.

After the capture of Seringapatam, the Breeding establishment was intrusted to the native government, and the Public Cattle department to an agent; but the inducements which had led Haidar and Tipu to keep up its efficiency were wanting, and by the end of 1813 the cattle had degenerated to such a degree that the management was taken over by the British, and 10,914 head of breeding cattle, the exact number made over to the Raja's government in 1800, received back. A Commissariat officer (Captain Harvey) was placed in charge, with a suitable establishment, and up to the 31st July, 1816, the number of cattle had increased to 14,399, exclusive of 900 calves transferred as fit for service. By 1823 the original number had nearly doubled itself, besides supplying for the public service young bullocks equal to one-fourth part of the increased establishment. In 1860, from motives of economy, Sir Charles Trevelyan ordered the establishment to be broken up, and the herds to be sold; but the results were to the detriment of the public service. The Amṛit Mahál was therefore, with the cordial approval and assistance of the then Maharaja, re-established in December 1867, with 5,935 head of cattle. In 1871 there were 9,800 head of all sizes, exclusive of 1,000 young male cattle in the Training Depôt. It was arranged that a certain number of bulls should be handed over to the Mysore Government annually, to be stationed at various points in the country for the purpose of improving the breed of cattle used by the ryots.

The cattle were divided into 30 herds, containing from 200 to 700 head of cattle each; for the grazing of which, 208 *kávals* or pasture grounds were allotted in various parts of the country.[1] They are divided into hot weather, wet weather and cold weather kávals, according to the seasons of the year during which they are of most use. The hot weather kávals are generally the beds of tanks in which grass springs up during the hot months, and near which there are trees for the purpose of affording shade to the cattle during

[1] Though a herd consists of both males and females of various ages, they are not allowed to graze in immediate company, each being divided into seven lots, called páls, to prevent their injuring one another. The average number of attendants or graziers is one to every fifty head of cattle.

the heat of the day. These are very valuable kávals, and are reserved as far as possible for the sole use of the Government cattle. The cold and wet weather kávals are those which during those seasons have plenty of grass and water, but which during the hot weather dry up and are of little use to the department ; in both the latter descriptions of kávals the ryots' cattle are permitted to graze certain fixed portions, and after the Government cattle have left for their annual visit to the jungles, the *shervegárs* are permitted to sell some part of the grazing, and from the funds thus obtained the *kávalgárs* or guards are paid and other expenses met. This privilege ceases at the end of July each year.

The *Amrit Mahal* cattle comprise three varieties, called the Hallikár,[1] Hágalvádi and Chitaldroog, from the districts which originally produced them, and may be readily distinguished from every other breed in India by the peculiar shape and beauty of their heads and the symmetry of their form. They seldom attain an extraordinary height, but in proportion to their size are remarkably deep and wide in the chest, long and broad in the back, round in the barrel, well ribbed up and strong in the shoulder and limb.[2] They are active, fiery, and walk faster than troops ; in a word, they seem to constitute a distinct species, and possess the same superiority over other bullocks, in every valuable quality, that thoroughbreds do over other horses. The cows of this breed are white, but the males have generally an admixture of blue over the fore and hind quarters. There is a fourth variety of coloured cattle, which are considered inferior to the white in energy and perseverance, though they rather surpass them in size. As the former breed is the most perfect that is known, it would only tend to its deterioration to cross it with any other, and the bulls are accordingly bred in the best herds, and individuals, selected from the best specimens, distributed to improve the breeds in the other herds.

A cow of this breed is supposed to give about one pucka seer of milk a day, and the calf could not be deprived of any part of it without

[1] An absurd legend is current among the herdsmen of the department regarding the origin of the *Hallikár*. They state that Haidar Ali, after one of his trips to the south, brought back to the Mysore country a number of cows of the small Brahmani caste. These cows were turned loose into a kával (in the Túmkúr District) in which there were great numbers of antelope, and a cross between the big black bucks and the small Brahmani cows gave the present Hallikár breed. In support of the story they point to the small spot below the eye, common to antelope and to Hallikár cattle.

[2] The general characters of a good bullock are a round barrel, stout strong legs, and broad forehead. The average height is 48 inches, and 50 inches was about the highest standard. But the average height has very much increased since the re-establishment of the department in 1866. Some of the bullocks now run up to 53½ inches. Of course weight is also a material consideration. The average is about 12 maunds or 43 stone, but no means have been adopted to determine this exactly.

being materially injured in its growth. The calves remain with their mothers during the day, but are separated from them at night, and are kept in a fold under charge of the herdsmen until they are three months old, when they begin to graze and get strength. In the cold season, when the herbage is abundant, they are generally weaned at the age of five months ; but such as are brought forth later in the year cannot be separated from their mothers till after the hot weather. After separation, care is taken to conduct them to the richest pastures in the neighbourhood, and they are never supplied with any other food.

Heifers begin to breed between three and a half and four years old, and bring forth six or seven times. Twenty cows are allowed to one bull. The bulls begin to propagate at five years of age and retain their vigour till ten, when they are discarded from the herds. The average annual amount of births is fifty per cent on the number of cows, and the proportion of male and female calves is nearly equal.

The whole of the cattle, bulls, cows and calves subsist entirely on what the pastures afford, and on the stalks of the castor, *baller*, *kulti*, and other nourishing plants, which are left on the ground for their use after the harvest in the months of January, February and March. This brings them into excellent condition at the most favourable season for the cows taking the bull. In the dry weather, when a want of forage and water prevails in the open country, the herds are conducted to the south-western jungles, where the natural moisture of the soil, the early showers, and the shelter afforded by the trees are favourable to vegetation. They arrive there in May and return to their pastures in September, when the grass is in great abundance all over Mysore.

The calves are castrated in November, the cold weather being found peculiarly favourable to the success of the operation, and invariably between the age of five and twelve months, as their growth is supposed to be promoted by early castration ; and it is attended with this important advantage, that it prevents the cows being impregnated by inferior bulls and consequently prevents the breed from degenerating. They are separated from the herds after four years of age and transferred to the Public Cattle Department when turned of five, perfectly trained and fit for work. They arrive at their full strength at seven and are past their vigour at twelve ; they work till fourteen or fifteen, after which they decline rapidly and generally die at eighteen years of age. The cattle of these herds are kept in their wild state, without shelter of any description ; they are very fiery and cannot be approached by strangers without the protection of the herdsmen. It requires several months to break them in, and the employment is extremely difficult and dangerous.

At the age of three years the catching of bullocks takes place, previous to which they are nearly as wild as the inhabitants of the jungle. The bullocks are first driven into a large oval enclosure, which they are made to enter with much difficulty. This communicates with a square yard, surrounding an inner enclosure about twenty feet square, which is surrounded with a strong fence made of wooden posts placed close together and about twelve feet high. When they are collected in this, the opening is closed. The trainers then ascend on the top of the fence, and throw a noose round each of the bullock's horns. This done, the end of the rope is passed between posts near the ground, and the animal is drawn close up and secured by people on the outside. The passage is then opened and old trained bullocks admitted. One of the latter is bound by the neck to one of the wild animals, which being done, the rope is loosened, when he immediately endeavours to escape. His trained comrade, however, to whom he is coupled, restrains him, though but partially; accordingly the two leave the enclosure at tolerable speed. The rope by which the untrained bullock was originally noosed is allowed to remain attached to his horns, and when they approach one of the strong posts placed in the immediate vicinity of the enclosure the rope is quickly turned round it, by which the animals are again brought up. The untrained bullock is then well secured by the neck, with as little latitude of motion as possible. There he is kept alone for about two days, until he becomes considerably tamed and worn out with unceasing efforts to escape. The next operation consists in attaching to the animal a couple of blocks of wood so heavy as to be moved with some difficulty, and giving him as much liberty as this admits of. He is then admitted to the company of old trained cattle, and from the twofold effects of example and partial restraint he gradually becomes submissive. The bullocks are now grazed in the vicinity of Hunsur for a further period of three years, being tied up regularly each evening in lines. They are then transferred to the Public Cattle Department to undergo final breaking for the public service.

Since the Rendition the following changes have taken place:—On the 1st January, 1882, the Mysore Government purchased the Amṛit Mahál cattle from the Madras Government, there being at that time 30 herds, with 12,502 head, of which 4,618 were cows and 177 breeding bulls. It was stipulated that the Department should supply the Madras Government for ten years with three-year-old bullocks at Rs. 50 per head, to a number not exceeding 400 annually. In 1886 this limit was reduced to 200 of four years old at the same price. The herds were therefore broken up in 1887 and their number reduced to sixteen. In 1889 steps were taken to form special herds of big and fine cattle. There are thus 23 herds now (1894) under six darogas. The steers are not caught near Hunsur, but in different kávals, and are accustomed to being tied up before being handed over to Madras. Others are sold at reduced rates or distributed to raiyats at suitable places. Each of the

darogas has also a sheep farm, where the country ewes are crossed by cross-bred Kashmir rams.

At the Hissar Cattle Farm in the Punjab, artillery cattle are bred from the Mysore cross to serve as "leaders." At the Bhadgaon Farm of the Bombay Government cattle-breeding has been established for over eleven years, the herd having taken its origin from the Mysore Amrit Mahal. The main object has been to breed Mysore bulls for crossing and improving the cattle of the country around. "As I passed through the district, I saw evidence," writes Dr. Voelcker, "of the impress which the Mysore cattle reared at the Farm had made upon some of the other cattle, and how superior to the ordinary cattle were those which had the Mysore 'touch' in them."[1]

Mádésvaran Betta—This breed comes from the jungles and hills near Biligirirangan Betta, on the south-eastern frontier of Mysore. They are larger than the Amrit Mahál cattle, but are loosely made and not well ribbed up. They have heavy loose-hanging dewlaps, sloping broad foreheads, and large muzzles. They are very heavy slow animals, but crossed with a Hallikár bull they form excellent cattle for draught and ploughing. Of this cross-breed are the cattle mostly used by the large cart owners who carry on trade from towns in the Mysore territory to the Western Coast, Bellary and other places.

Kánkánhalli.—This breed comes from Kánkánhalli, in the south-east of Mysore; they are very like the Mádesvaran Betta breed, but are generally smaller, though larger than the Amrit Mahál breed. They have thick horns, broad sloping foreheads, and white, very thick skins. In all other respects the remarks regarding the Mádesvaran Betta breed are applicable to the Kánkánhalli.

The *village cattle* vary very much in size, colour and characteristics; in some parts very fair cattle may be seen, but as a general rule the village cattle are a stunted inferior race. The cows generally give from half to one seer of milk per diem, though occasionally some may be met which give three seers, but it will be generally found that these have been fed on nutritious food, such as oil-cake, cotton-seed and such like. The bullocks are small, but for their size do a surprising amount of work.

Buffalo.[2]—Of the buffalo there are three varieties, the *Hullu*, the *Gaujri* or Gujarat, and the *Chokatu*, which comes from the country bordering on the river Krishna.

The *Hullu* is by far the most common, and is the native breed of the country. The female has a calf every year, and gives milk for seven

[1] *Report on the Improvement of Indian Agriculture*, 204.

[2] Much of the information in the following paragraphs is from Buchanan.

months. Besides what the calf draws from her, she gives twice a day about a quart of milk. She generally bears from ten to twelve calves, and is very unruly when the keeper attempts to milk her without the calf being present. They will convey a greater weight, either in a cart or on their back, than a common ox; but walk very slowly, do not endure heat, and cannot easily travel more than seven miles a day.

The two stranger breeds are greatly superior in size to the *Hullu*; but in this country they very soon degenerate. The females breed once in two or three years only, and produce in all about six calves. For two years after each parturition they continue to give a large quantity of milk; but in the third year their milk begins to diminish; and it entirely ceases about two months before the time of calving. In this country, besides what the calf is allowed, they give daily from six to eight quarts of milk and require no more food than the common breed, neither do they refuse their milk should the calf be removed or die. The males are entirely reserved for breeding or for carrying loads; one of them will carry as much as six oxen, and will walk faster.

Sheep.—These are of three varieties, the *Kurubar* or ordinary breed, so called from the caste which rears it; the *Gollar*, which is less common and which owes its name to the same cause; and the *Yeḷaga*, which is the rarest of the three. White, brown and black colours are found in all three breeds. The Kurubar is a small sheep, with horns curling backwards. Both its flesh and wool are superior to those of the other two varieties. The Gollar is distinguished from the Kurubar by its large size, coarser wool, longer neck and different formation as to the head and jaws. The Yeḷaga, which is rare, is longer in the leg, and stands higher than the other breeds, but is less bulky and more resembles a goat in structure of the body and limbs. The sheep of this variety are never shorn of their wool, being too coarse for manufacture, and they shed their coats once a year. This is the breed which is used for draught and carriage of children. The Gollar sheep are left out at night at all seasons and in all weathers, and do not appear to suffer from the exposure, while the Kurubars and Yeḷagas are invariably housed at night. The different breeds are never mixed, chiefly owing to antagonism between the Kurubar and Gollar castes; but even in the absence of enmity between the shepherds it is doubtful whether the two varieties could ever be brought to mix, and it is pretty well established that the Yeḷaga will not amalgamate with the other two. They are solely dependent on pasturage, being never fed on grain.

Sheep, with the exception of the Yeḷagas, are shorn twice a year, and fifty fleeces amount to about a maund weight. The wool is all coarse,

and is made into rough kamblis. The shepherds usually hand over 100 fleeces to the weaver, who gives them in return a kambli. There was formerly a Government manufactory at Húnsúr, which turned out good blankets made from the wool of the white sheep in the Government farm. This has been abolished.

"The woolly breed of sheep, which exists throughout Mysore, is fairly esteemed," says Dr. Shortt, "both for its mutton-forming and wool-producing qualities. The rams have large heavy horns, wrinkled and encircled outwards, and their points inwards and forwards. The head is large and heavy-looking, with a prominent Roman nose. The ears are of moderate size and pointed, and the tail short, never exceeding 3 to 4 inches. The ewes are mostly hornless. They are occasionally met with small light horns, seldom exceeding 3 to 4 inches in length. The prevailing colour is from a light to a very dark grey or black. The ram stands 25 inches, and the ewe 23 inches in height. The ordinary live weight is from 40 to 60 lbs., but gram-fed wethers attain from 60 to 80 lbs. They have fairly compact carcases, with good width, prominence and depth of chest; the body is well wooled and rectangularly formed; in picked specimens the counter is full and the shoulder is fairly filled when in condition. The fleece never exceeds 3 to 4 lbs., and the staple averages 3 to 4 inches in length. An ordinary sheep fetches from 2 to 3 rupees in the market, fat wethers 7 to 10 rupees each.

"This breed furnishes the chief fighting rams of Southern India, for which purpose good picked male rams are sought after by native Rajas, Zamindars and others. They are much petted and pampered, till they grow quite savage; they will butt and also strike with their fore-feet; and I have also seen in one or two instances a propensity to bite. They are pitted against each other, and large sums of money staked on the result. In fighting, they run a tilt by first moving backwards some short distance to add force to the impulse of their weight; and frequently in the fight they have their heads or horns broken. These rams, from special selection and good feed, often attain 30 inches in height and over 80 lbs. in weight. Size does not necessarily ensure success in the battle, as I have seen the largest ram of the kind I remember ever having met with, run away after a few tilts from one that was very much smaller. All the breeds of sheep in Southern India are pugnacious and reared to fight, the preference always being given to the black woolly breeds of Mysore or to those of Coimbatore. This breed extends from Mysore to Bellary, where after a time the wool frequently changes into long lank hair."

For many years Sir Mark Cubbon had an experimental sheep farm at

Heraganhalli, Nagamangala taluq, under the charge of a European Commissariat subordinate officer. Merino rams were imported yearly from Australia and the cross-breeds distributed all over the country. The breed of sheep throughout the Province was thus immensely improved both as to size, quality of mutton, and wool. The wool was sent in bales by the Mysore Government to England for sale, as well as for the purpose of being manufactured into blankets and serge. The farm was given up in 1863, as it did not pay expenses. This was owing apparently to sheep-breeding alone receiving attention : if other branches of farming had been combined, the results would probably have been more favourable.

In 1888 a flock of fifteen rams and ewes was imported from Australia with the view of improving the fleece of the country breed. A flock of white sheep and their lambs by an acclimatized merino ram had also been collected for breeding purposes. The lambs thus bred are larger and the fleece of the sheep much better than those of the ordinary sheep of the country. Some have been sent to Haidarabad and others sold or distributed to raiyats for breeding.

Goats.—There are two kinds of goats, the long-legged or *méke*, and the short-legged or *kanchi méke*, but the two can propagate together. In every flock of sheep there is commonly a proportion of 10 or 20 *méke* to 100 sheep. This does not interfere with the pasture of the sheep, for the goats live entirely on the leaves of bushes and trees. One male is kept for twenty females. Of those not wanted for breeding, the shepherd sacrifices some for his own use while they are young ; the remainder he castrates and sells to the butcher. The female breeds at two years of age. They breed once a year, about four times, after which they are generally killed by the shepherds for their own use. For three months the kid is allowed the whole milk : afterwards the mother is milked once a day for two months ; and eight goats will give a quart of milk. The excrement of both sheep and goats is much used for manure.

ETHNOGRAPHY

The aboriginal inhabitants of Mysore cannot probably be now traced with any degree of certainty, though remains of prehistoric races abound in stone monuments of different kinds, elsewhere described. On various scientific grounds India appears to have been originally part of a continent (to which the name Lemuria is sometimes given) stretching west to Africa and east to Cochin-China and Australia, of which Madagascar on the one side, and the islands included in Melanesia in the Indian Archipelago on the other, are some of the principal existing remains.[1] Of the primeval human races whose home it may have been, there survived (according to a theory of Professor Huxley's, developed by Professor Haeckel of Jena) two, namely, a woolly-haired and a smooth-haired. From the former sprang the Hottentots and negroes in Africa westwards and the Papuans of New Guinea eastwards; from the latter, represented perhaps by the natives of Australia, were derived the straight-haired and the curly-haired races. The first were the progenitors of the Malays of the islands in the Pacific Ocean, and of the Mongols of Eastern and Northern Asia, who penetrated on one side to Europe (their survivors being found in the Finns, Lapps, Magyars and Turks), on the other side to America, producing the Red Indians: the second peopled India and spread to South-western Asia, North Africa and the South of Europe. The original inhabitants of South India and Ceylon, distinguished as Dravidians (*homo Dravida*), may perhaps represent the least changed examples of the second branch. This hypothesis discredits the views at one time adopted, that the Dravidians migrated into India from the north-west, of which there is little evidence, the indications being held to be equally in favour of the opposite course.

Several of the Puranas[2] claim an Aryan descent for the southern races by making their progenitors or eponyms, Pándya, Karnáta, Chola

[1] "Throughout the later part of the palæozoic and the whole of the mesozoic era, there was a continuous stretch of dry land over what is now the Indian Ocean." "At the close of the cretaceous or commencement of the eocene period, the great Indo-African continent was finally broken up, and all but the remnants in India and South Africa sunk finally beneath the sea."—R. D. Oldham, *Geology of India*, pp. 211, 494.

[2] The Váyu, Matsya, Agni and Brahma Puranas.—Muir, *S. T.*, II., 422.

and Kerala, to be descendants of Dushyanta, the adopted son of Turvasu, who was the younger brother of Yadu, and a prince of the lunar line. Their father Yayáti, the son of Nahusha, gave the government of the south to Yadu, and that of the south-east to Turvasu, who is also said to have been the progenitor of the Yavanas.[1] Another account[2] substitutes Kola for Karnata. The former is a name which occurs extensively throughout India as the designation of a wide-spread aboriginal race. If the two therefore are interchangeable, it would seem as if the people of Karnata were considered identical with the Kols of the Central Provinces.[3] The name appears in Kolar, after which the eastern District of Mysore is called, as well as in Kolála in the Túmkúr District.[4]

Though the Dravidians were certainly not Aryans, these statements may embody prehistorical myths. For analysis of such myths may be made to show that Turvasu was the name of a star-worshiping people, whose god (Akkadian *vasu*) was the meridian pole (*tur*), which stood for the Linga or Phallus, being evolved from the fire-drill and socket, its revolution amid the circumpolar stars of the Great Bear being considered the cause of the rains. They may be identified with the Zend Turanians (*an* signifying god in that language), and with the maritime traders called Tour-sha and Tur-sene or Tyrrhenians mentioned in Egyptian and Greek records. Their first great trading port was Dváraka in the peninsula of Kathiawar; other exporting harbours being Súrpáraka (Surat) at the mouth of the Tapti, and Baragyza (Broach) at the mouth of the Narmada. They made settlements at the holy island of Dilmun (now Bahrein) in the Persian Gulf, and at Eridu, near the mouth of the Euphrates.

In course of time migration set the other way, and we meet with a race, also non-Aryan, who reverenced the moon (*sin*) and brought in

[1] Turvasu was also sentenced to rule over savages and barbarians—Mlechchhas, or people not Hindus . . Manu, too, places the Dravidas amongst Mlechchhas; and these and similar passages indicate a period prior to the introduction of Hinduism into the south of India.—Wilson, *Vishnu Purana*, iv, 117. [2] Harivamsa, Muir, *op. cit.*

[3] The tribes driven out of the valley of the Ganges by the Aryans were almost certainly Kols to the south, and semi-Tibetans to the north.—Caldwell, *Gram. Drav. Lang.*, Int., 63.

[4] The generally received theory is that the Kolarian tribes are relics of barbarians who entered India from the north-east at some very remote pre-historic period: they were subsequently, perhaps thousands of years ago, pushed aside by Turanian immigrants from Western Asia, who penetrated India from the north-west and filled the western and southern districts; at a later period the Aryans came into India, also from the north-west, settled in the Punjab, and eventually spread, first east and lastly south, into all parts of the Indian continent.

the year of thirteen lunar months. These were the Hus, Shus or Sus, the yellow race from the sources of the Tigris and Euphrates (and later of Shushan) who settled in the delta of the Indus—the Su-varna from whom Sindh was called Sindhu-Suvarna, part of Bengal Karna-Suvarna, and Gujarat and Kathiawar received the name of Sau-ráshtra. They correspond also with the Sabaræ of Ptolemy, the Suari of Pliny, and the Sauviras of Baudháyana. They were the great Sumerian and Vais'ya traders of Western Asia and India (if not China), the progenitors of the modern Saukars. Their capital was Pátála (Haidarabad in Sindh), then a seaport, though now 150 miles from the sea. They gave to the river its name Sindhu or Hindhu, which has come to designate the whole of India and its inhabitants. They are referred to as Yonas by Asoka and as Yavanas in the Mahabharata.[1]

Dushyanta (previously mentioned) or Dushmanta, as he is also called, who was of the line of Puru but adopted by Turvasu, became the father, by Sakuntala, the heroine of Kalidasa's exquisite drama, of Bharata, after whom India was called Bhárata-varsha, or land of the Bháratas. These are represented by the Bars or Bhars, whose name is perhaps really derived from the Bar or banyan-tree (*ficus indica*), which they held sacred. They are an aboriginal race, classed among the Dravidians, and once ruled over a large area from the Central Provinces to Oudh and Behar. They are mentioned by Ptolemy as Barrhai, and may be the Sanskrit *barbara* or barbarians.[2] Besides Yadu and Turvasu, Yayáti had three sons, Druhyu, Anu and Puru. And the collective people of the five races who claimed to be descended from them were the Dravidian Bharatas under Vis'vamitra, who resisted the Aryan advance under Vasishtha, and whose defeat is celebrated in the seventh mandala of the Rig-veda.[3]

As regards Mysore, which is included in the Dravidian region, it seems not unlikely that the Tudas or Todas of the Nilgiris may be representatives of primeval tribes there settled. Not only is their

[1] See J. F. Hewitt's "The Ruling Races of Prehistoric Times," from which these particulars have been extracted, out of a bewildering maze of detail. "It was in this region (the Western Punjab) probably that they (the Aryans) found the first enemy of foreign race to themselves, for they mention hostile serpent-worshippers of a yellow complexion, and from other sources we learn that very early in history there had been movements amongst the light-tinted race of West-Central Asia, that went by the generic name of Skythian."—J. A. Baines, *General Report on the Census of India*, 1891, p. 122.

[2] See "The Original Inhabitants of Bhárata-varsha," by Dr. G. Oppert.

[3] The story is told in Rig-veda, vii., 18, 33 (1–6) and 83, and in iii., 33.—Hewitt, p. 112.

language Old Canarese (modified apparently by the exigencies of their present location[1]), but it is suggestive that they hold sacred the buffalo, from which animal Mahishúr (Mysore) derives its name. It might even be supposed that the legend of the conquest of Mahishásura by Chámundi is based on an historical fact,—a victory gained over the minotaur ruler of the Mahisha mandala, or buffalo kingdom, by adherents of one of the Saktis of Siva, in consequence of which the Tudas and other tribes were driven to take refuge in the mountains, but that its frequent occurrence as a subject of sculpture in other parts seems to indicate that the triumph was an event of wider and more national importance.

The Tudas have excited much interest as a race and as regards their origin. It was at one time held by some that they were Skythians, but it is now generally admitted that they are later arrivals than the race by whom the ancient monuments were constructed on which a Skythian descent was based.

In the next chapter, however, it will be seen that the ancient history of the country leads us back, as one of the earliest known events, to the conquest by the Haihayas, presumably a Skythian people, of Mahishmati or Mahesvara-pura (in the Central Provinces), and its subsequent recovery by the emperor Sagara, sprung from the ejected native race, who thenceforward imposed on the vanquished the stigma of shaving their heads in peculiar modes as a mark of subjection. Now not only do the Tudas (in common with other supposed aborigines) wear their hair unshorn, but it is worthy of note that they are acknowledged as lords of the soil by the Kotas, Badagas[2] and other tribes on the hills, also immigrants from Karnata,[3] though of a later date, who pay them *gudu*, *kutu* or tribute; and that in virtue of this position the Tudas systematically abstain from all labour, unless milking their buffaloes can be described as such.

Another early if not aboriginal race are probably to be found in the

[1] The Tudas chiefly converse in the open air, calling to each other from one breezy hill top to another. Their speech sounds like Old Canarese spoken in the teeth of a gale of wind. . . . The language seems to have been originally Old Canarese and not a distinct dialect. The Tudas were probably immigrants from the Canarese country, and have dwelt on the Nilagiris for about 800 (? at least 1,800) years.——Dr. Pope, *Outlines of Tuda Gram.*

[2] The Badagas, northerners, are so called from *badaga*, the Kannada for north.

[3] Kota may be considered as a very old and very rude dialect of the Canarese, which was carried thither (the Nilgiri hills) by a persecuted low-caste tribe at some very remote period. . . . The dialect spoken by the Burghers or Badagas (the northern people) is an ancient but organized dialect of Canarese.—Dr. Caldwell, *Gram. Drav. Lang.*, Intro., 37.

Hale Paika or Paiki, of the Nagar Malnad, and there are some curious coincidences between them and the Tudas. Their name is said to be derived from *hale* and *páyika*, meaning Old Foot, as they furnished the foot-soldiers and body-guards of former rulers, to whom they were noted for their fidelity.[1] Considering the locality which they chiefly inhabit, we may conjecture that they formed some portion of the so-called monkey army which assisted Rama in his expedition against Ceylon. A nearly corresponding tribe on the coast north of Honavar is called Kumára Paika, the Junior Foot. There is a military tribe in Vizagapatam, called Paiks, who are said to be plainly aboriginal.[2] Also Paiks in Orissa, who call themselves sons of the squirrel, are classed among the first Turanian immigrants.[3] The principal occupation now of the Hale Paiki is the extraction of toddy from the bhagni palm (*caryota urens*), the cultivation of rice land, and of kans or woods containing pepper vines; but they are described as still fond of fire-arms, brave, and great sportsmen. In Vastara and in Tuluva (S. Canara) they are called Bilvar or bowmen.[4] In Manjarabad they are called Devara makkalu, God's children, which seems to support an aboriginal claim, and are *mande* and *gráma paṭels*.

Now it is not a little singular that Paiki is the name of the highest clan of the Todas, from which alone the *pálál* or priests are taken, and that the latter style themselves Dér mokh, *i.e.* Devara makkalu, or God's children. The *mand* of the Nilgiris corresponds with the *mande* of Manjarabad. The Todas, on account of their dark complexion, were supposed by Dr. Caldwell to have come from "the eastern or sun-burnt side of the range of Ghats." On the other hand "the similarity of some of their customs to those of the Malayálams and the position of their mands, which are mostly in the western uplands of the plateau, whilst some are even in the Wainád, seem to lend colour to the view that their country lay to the west of the Nilagiris." Whatever

[1] The derivation *hale páyika* is questionable. I have seen *hale páyaka*, which would mean "old drinkers," also given as the origin of the word. The occupation of toddy-drawing may have suggested the latter. And if the peculiarity which Colonel Marshall has remarked in the Todas, that they always keep step in walking—said to be very unusual even among trained sepoys when off duty—be common to the *hale paika*, it may have suggested the other.

[2] Macleane, p. 66.

[3] Hewitt, p. 192.

[4] In connection with the view of Ethiopian affinities in these races, it is curious to note that Herodotus in his account of the presents sent by Cambyses to the Ethiopians (III, 20–22) particularly mentions a *flask of date wine*, and that their king, though distrustful of the other things, was delighted beyond measure with the beverage when he was informed how it was obtained. Also that he sent the Persian king a singular *bow* in return. The bow figures in some remarkable rites among the Todas.

may have been the land of their origin, it seems more likely that "a race of drovers of semi-amphibious buffaloes gradually pushed forward its herds through the rich moist flats of Wainád to the grassy downs of the Nilagiris, than through the dry plains of Coimbatore and Salem."[1]

Colonel Marshall, in his interesting work on the Todas, says:—"In the process of writing of them I have grown to the very strong conviction that the people are a surviving sample of some portion of the Turanian race when in its very primitive stage. Without much exercise of the imagination I can picture them the contemporaries and neighbours, even perhaps the ancestors, of races of south-western Asia which have made a figure in early history. There is much of the 'blameless Ethiopian' about them: something of the Jew and Chaldean in their appearance." In a note he adds:—"On the eve of sending this work to the press I would beg again to urge my belief in the connection between the Dravidian Toda and the Ethiop."[2]

Still keeping to the hills, we may probably set down the Kurubas of the south-western forests, and the Soligas of the Biligirirangan hills on the south-east, as aboriginal tribes. The Kurubas, or Kurumbas, as they are there called, extend to the Nilgiri hills, where the Badagas, who attribute to them great powers of sorcery, always at the time of ploughing employ a Kuruba to turn the first furrow, which may be emblematic of an ancient ownership in the soil, and a sort of acknowledgment that the Kuruba permits it to be cultivated. It is significant too that the Kurubas do not pay *gudu* or tribute to the Todas as the other tribes do.[3]

The Kádu or wild Kurubas of Mysore are divided into Beṭṭa or Hill Kurubas,[4] a small and active race capable of enduring great fatigue, who are expert woodmen: and the Jénu or Honey Kurubas, said to be a darker and inferior race, who employ themselves in collecting honey and bees'-wax. Their villages or clusters of huts are called *háḍi*. Among their peculiar customs, a separate hut or *chávaḍi* is set apart in which the unmarried females of the háḍi sleep at night, and another at the other extremity of the háḍi for the unmarried males; both being under the supervision of the headman of the tribe. They are their own barbers, bits of broken glass doing duty for razors. Strangers are not allowed to enter a háḍi with shoes on. In cases of death, adults only are cremated; children are buried. The Beṭṭa

[1] Grigg's "Manual of the Nilagiri District," ch. ix.

[2] "A Phrenologist among the Todas," p. 4.

[3] Breeks, "The Primitive Tribes and Monuments of the Nilagiris."

[4] There are also subdivisions called Áne (elephant), Bévina (from *bévu*, the neem-tree), and Koḷḷi (firebrand) Kurubas.

Kurubas worship forest deities called Nóráli and Mástamma, and are said to be revengeful, but if treated kindly will do willing service. The Jénu Kurubas never own or cultivate land for themselves, nor keep live-stock of their own. Both classes are expert in tracking wild animals, as well as skilful in eluding pursuit by wild animals accidentally encountered. Their children when over two years old move about freely in the jungle.[1]

The Iruḷiga of the forest tracts in the eastern Districts, seem to be another tribe closely resembling the Jénu Kurubas, and engaged in the same pursuits. Their name is said to be derived from *iruḷ*, night, indicating the blackness of their hue. Buchanan mentions that they called themselves Chensu, the name of well-known wild tribes in the Madras country. The Soligas are a very secluded race. They speak Old Canarese, and are remarkable for their keenness of sight, and skill in tracking wild animals. The tribes of Hasulas and Maleyas, who somewhat resemble them, are met with along the Ghats on the western frontier. But these appear to be immigrants from South Canara, and speak Tulu. They collect cardamoms and other wild products for their employers, whose agrestic slaves they have virtually become. They live in small isolated huts, which, in the case of the Hasulas, are provided not only with the usual principal entrance by which to crawl in, but also with a half-concealed hole in the rear, through which the shy inmates steal out into the jungle at the merest suspicion of danger or on the approach of a stranger. Their religion seems to be devil-worship. When a person dies, his spirit is supposed to have been stolen by some one else's devil, who is pointed out by the astrologer after divination by throwing cowries or rice. The heir or relation of the deceased then redeems the spirit by offering a pig, fowl or other gift, and it is caused to take up its abode in a pot, which is periodically supplied with water and nourishment.[2]

The Korachas, Koramas, or Koravas, a numerous wandering tribe, who carry salt and grain from one market to another by means of large droves of cattle and asses, and also employ themselves in making bamboo mats and baskets, appear to have an affinity with aboriginal or early naturalized tribes. The mode in which the men wear their hair, gathered up into a large knot or bunch on one side of the top of the head, exactly resembles what we see in the sculptured figures on various stone monuments. The women, again, may be known by numerous strings of small red and white glass beads and shells worn round the neck and falling over the bosom. In the depths of the forest they are

[1] Report on the Mysore Census of 1891, pp. 226 *ff.* [2] *Ib.* p. 230.

even said to dispense with more substantial covering. This also accords with the ancient practice illustrated in numerous bas-reliefs. For women, as there represented, are commonly arrayed in nothing more than rows of ornamental chains and jewellery, pendent from the throat and loins—an attire, if such it may be called, worthy of the Age of Innocence ; and becoming enough, it may be, on the golden-olive and nut-brown tints, that scarce reveal a blush, of Nature's vesture for the fair of these climes.

The Koravas in Chutia Nagpur are described as Kolarians,[1] and such those in Mysore may be by origin. They are here credited with strong thieving propensities. One section is called Dabbe (split bamboo), and consists no doubt specially of mat-makers. It would appear as if some reminiscence of a custom like *couvade* lingered among the Koravas, for it is said that when a woman is confined, her husband takes medicine for her.[2] They live in small camps of movable wicker huts, which are sometimes stationary for a time near large towns, but are often removed from place to place daily.

Descending to the interior, we find an out-caste race, the Holayas, whose name may be derived from *hola*, a field,[3] occupying a quarter of their own, called the Hola-géri, outside every village boundary hedge. They are the Chanḍála of Sanskrit writers ; and are the representatives of the Bala-gai or right-hand faction, of which an account will be found further on. "As a body they are the servants of the ryots, and are mainly engaged in tending the plough and watching the herds. But one of this despised order is generally the priest to the village goddess, and as such, on that annual day when all hasten to pay their offerings at her shrine, takes precedence of the twice-born Brahman."[4]

The *toṭi* or *kuḷavádi* (he who directs the ryots), always a Holaya, is a recognized and indispensable member of every village corporation. In his official position he is the village policeman, the beadle of the village community, the headman's henchman ; but in the rights and

[1] Hewitt, p. 47. "The old traditions make no distinction between the dark races, if indeed there were any. Philology indicates a fairly well-marked distinction between the languages of the tribes of the central belt, and groups one section, mainly that to the southward, under the head of Dravidian, and the other under a title which has remained, for want of a better, in its primitive and not very correct form of Kolarian. Physiology, however, has been busy amongst these tribes, and discovers no trace of distinction between the two groups."—Baines, p. 123.

[2] Mys. Cen. Rep., p. 226.

[3] But the Brahmans call them Holeyas, which they derive from *hole*, impure.

[4] This and following particulars are taken from a paper by Captain Mackenzie on the "Kuḷavaḍi of the Hassan District."—*Ind. Ant.*, II., 65.

privileges which yet cling to him we get glimpses of his former estate, and find proofs that the Holayar were the first to establish villages. All the castes unhesitatingly admit that the kuḷaváḍi is (*de jure*) the owner of the village. If there is a dispute as to the village boundaries, the kuḷaváḍi is the only one competent to take the oath as to how the boundary ought to run, and to this day a village boundary dispute is often decided by this one fact—if the kuḷaváḍis agree, the other inhabitants of the village can say no more. Formerly, when a village was first established, a large stone, called *karu kallu*, was set up within it. To such stones the patel once a year makes an offering, but the kuḷaváḍi, after the ceremony is over, is entitled to carry off the rice, &c., offered, and in cases where there is no patel, the kuḷaváḍi performs the ceremony.

But what seems to prove strongly that the Holaya was the first to take possession of the soil is, that the kuḷaváḍi receives, and is entitled to receive, from the friends of any person who dies in the village a certain burial fee, or, as it is forcibly put, "they buy from him the ground for the dead." This fee is still called in Canarese *nela hága*.[1] In Manjarabad, the ancient Balam, the kuḷaváḍi does not receive this fee from those ryots who are related to the headman. Here the kuḷaváḍi occupies a higher position; he has in fact been adopted into the patel's family, for on a death occurring in such family the kuḷaváḍi goes into mourning by shaving his head. He always receives from the friends the cloths the deceased wore, and a brass basin.

The kuḷaváḍi, however, has to pay an annual tax, consisting of one fowl, one haṇa (4 annas 8 pie), and a handful of rice, to the agent of the Suḍugáḍu Sidda or lord of the burning grounds, who resides somewhere in the Baba Budan hills and is of the Gangaḍikára Wokkaliga caste.

Traditions, whose authenticity there seems no reason to doubt, are preserved, as elsewhere related, of an early Jain immigration, perhaps in the 4th century B.C., from Ujjayini and the north; also of the introduction in the 3rd or 4th century A.D. of Brahmans, the progenitors of the Haiga or Havika Brahmans of the Nagar country, from Ahichchhatra in Pánchála or Rohilkhand, by one of the Kadamba kings;[2] of the attempt of the king of the Chandalas above the Ghats to

[1] From *nela*, the ground, and *hága*, a small coin (worth one anna two pie).

[2] The Haiga Brahmans seem to be of pure race and of no bastard or doubtful caste. They are described as very fair, with large eyes and aquiline noses, a description which would imply for them a derivation from an uncorrupted and little intermixed northern source.—Campbell, *Ethnol. India*, 74.

form a matrimonial alliance with a Kadamba princess, his consequent death by treachery and the loss of his kingdom, into which the Brahmans under the new rulers gained admission. In the south we have evidence that in the 3rd and 4th centuries the Ganga kings were extending their sway over Mysore, and this seems to have been accompanied by a gradual setting aside of the predominant Jain influence by that of Brahmans. The Chola invasions of the 11th century introduced a large Tamil influence. In the east and north, we may suppose that under the Mauryas and the Pallavas, up to the 6th century, Buddhistic influences would be chiefly at work, and settlers from the Telugu countries attracted into Mysore. The progress of events as related in the next chapter will suggest the circumstances under which the population was probably recruited by Kongas, Reḍḍis, Woḍḍas and other tribes.

As far back as the 10th century we find two great territorial divisions, namely, Gangaváḍi, occupying the southern and central parts of the country, and Noṇambaváḍi the northern. The correspondence of names shows that in the Gangaḍikára and Nonaba Wokkaligas, who form, especially the first, so large a proportion of the agricultural class, we have the descendants of the subjects of those provinces. The advent of Muhammadan and Mahratta immigrants can without much difficulty be assigned to the right time, and that of Europeans is well known. The vicissitudes through which the country has passed will prepare us to find a great admixture of castes and people. Accordingly, no fewer than 112 different names of castes and 382 recognized subdivisions occur in the last Census Report for 1891. The number of subdivisions actually returned, however, is stated to have been no less than 864.

POPULATION

The first census was taken in 1840–1 and the next in 1851–2, since which period annual returns were made up until 1871, when a census more minute and exact was carried out. The latter indeed may probably be considered the only real census obtained by actual enumeration of the people; the older *kháneshumári* estimates having been generally formed, it is believed, by multiplying the ascertained number of families by a figure assumed to be the average number of members composing each. Nevertheless the figures, so far as any are available, are not without interest.

Year.	Hindus.	Muhammadans.	Others.	Total.
1801	...	...	...	1,969,493
1804	2,094,359	77,395	...	2,171,754[1]
1832	...	...	...	3,500,000[2]
1841	...	...	...	3,050,713
1851	...	...	...	3,426,458
1852	...	...	...	3,460,696
1854	...	...	...	3,501,283
1855	...	...	...	3,535,441
1856	3,476,966	152,611	...	3,629,577
1857	3,447,944	161,160	...	3,609,104[3]
1858	3,557,110	181,817	...	3,738,927
1859	3,621,723[4]	200,500[4]	...	3,822,223
1860	...	...	...	3,821,000
1863	...	...	...	3,872,209
1864	...	...	...	3,895,687
1865	...	...	...	4,013,601
1866	...	...	...	3,915,721 } Famine
1867	3,724,178	172,255	14,302	3,910,735 } years.
1868	...	...	...	3,909,121
1869	3,793,973	182,654	29,713	4,006,340
1870	3,839,679	189,272	27,815	4,108,607

The results of the regular census of 1871 showed that the population must have been under-estimated in the previous valuations.[5] But so far as these afford any data for calculation, the rate of increase in the decade 1841–1851 was 12·3 per cent; in the 9 years 1851–1860 the rate was 11·5 per cent; and in the decade 1860–1870 it was 7·5 per cent.

[1] Excluding Balam and the recently interchanged districts, the number was 202,261. A considerable migration took place from the districts allotted to the Nizam into Dodballapur and that neighbourhood, but nearly the whole of these persons gradually returned after the cession of those provinces to the Company. Many families which had emigrated to Baramahal in 1792, when it was ceded to the Company, now returned to Mysore. About 200,000 persons also emigrated temporarily from the Mahratta country into Mysore, to escape from the famine which prevailed there.

[2] This is printed in the report as 4,500,000, a total which seems so manifestly wrong that I have taken the liberty of altering the first figure.

[3] The decrease is explained as due to the omission of the island of Seringapatam.

[4] Approximate.

[5] Writing in 1804, Col. Wilks has the following remarks on the estimate of population at that period:—"I am induced to suspect some error in one of the computations, notwithstanding the frequency in Mysore of that most fatal source of depopulation, the presence of a Mahratta army. The usurpation of Haidar Ali may be considered as complete in 1760; at that time many of the districts were permanently occupied by Mahratta troops. Gopal Rao Hari invaded Mysore in the same year. It was again invaded by Bani Visaji Pandit in 1761; by Madhu Rao in 1765, 1767 and 1770; by Tryambak Rao in 1771; by Raghunatha Rao in 1774; by Hari Pant Purkia in 1776 and 1786; and lately I have investigated on the spot and examined

The following table shows the total male and female population, and the total in each District, as found by the census of 1871, compared with the numbers of the previous estimate :—

District.[1]	Estimated Population of 1869–1870.			Actual Number as per General Census of 1871.			Increase per cent.
	Males.	Females.	Total.	Males.	Females.	Total.	
Bangalore ...	356,241	303,162	659,403	414,543	413,811	828,354	25·6
Kolar	274,859	251,601	526,460	309,685	309,269	618,954	17·6
Túmkúr ...	251,029	245,034	496,063	315,440	316,799	632,239	27·5
Mysore ...	400,537	362,922	763,459	467,562	475,625	943,187	30·7
Hassan ...	320,373	272,428	592,801	328,324	340,093	668,417	12·8
Shimoga ...	234,167	196,053	430,220	258,446	240,530	498,976	16·0
Kadur	137,593	124,229	261,822	170,337	163,588	333,925	27·6
Chitaldroog ...	203,069	175,310	378,379	271,587	259,773	531,360	40·4
Total ...	2,177,868	1,930,739	4,108,607	2,535,924	2,519,488	5,055,412	23·0

Since the general census of November 1871 a general census has been taken on two occasions, one on the night of the 17th February 1881, and the other on the night of the 26th February 1891, synchronous with the general census of all India on those dates. The results of the three may be exhibited as follows :—

Year.	Males.	Females.	Total.	Difference per cent.	No. per square mile.
1871	2,535,924	2,519,488	5,055,412	...	172·5
1881	2,085,842	2,100,346	4,186,188	− 17·19	142·8
1891	2,483,451	2,460,153	4,943,604	+ 18·09	168·6

the traces of the merciless ravages committed in 1791 and 1792 by Parasuram Bhao. In consequence of these incessant calamities, many districts formerly well-peopled do not exhibit the vestige of a human being ; and Chitaldroog District in particular may be considered as deprived of the great mass of its inhabitants.

The word *valsè* is applied to the inhabitants of a district who, deserting their homes on the approach of a hostile predatory force such as that of the Mahrattas, migrate *en masse* to another part of the country or to inaccessible woods and hills until the departure of the enemy. And no testimony could be more emphatic to a state of habitual misery than the existence, in all the languages of the south, of this single term to describe what cannot be expressed in any European language but by a long circumlocution."

[1] The limits of the several Districts have been subject to alterations since, and do not therefore exactly coincide with the existing limits, though the names are the same.

The decrease which took place in the decennial period 1871 to 1881 was due to the great famine of 1877 and 1878. (The present population is somewhat greater than that of Ireland—4,704,750 in 1891.)

The distribution of the population by districts is as follows :—

District.	Approximate Area.	Males.	Females.	Total.	No. per square mile.	Percentage to total.
Bangalore ...	3,081	399,486	403,508	802,994	260	16·24
Kolar ...	3,433	297,655	293,375	591,030	175	11·96
Túmkúr ...	4,367	291,133	289,653	580,786	133	11·75
Mysore ...	5,078	580,737	601,077	1,181,814	232	23·90
Hassan ...	2,603	255,044	259,908	514,952	197	10·42
Shimoga ...	4,048	275,884	252,097	527,981	130	10·68
Kadur ...	2,685	173,922	156,141	330,063	123	6·67
Chitaldroog...	4,010	209,590	204,394	413,984	103	8·38

The classification of the people according to the main heads of religious belief gives the following results :—

Class.	Males.	Females.	Total.	Percentage.
Hindus	2,324,499	2,314,605	4,639,104	93·84
Jains...	7,116	6,162	13,278	·27
Muhammadans	131,473	121,500	252,973	5·11
Christians	20,306	17,829	38,135	·77
Others (Parsi, Sikh, Brahmo)	57	57	114	...
Total	2,483,451	2,460,153	4,943,604	

Compared with the similar table for 1871 it appears that Hindus have diminished by 1·25 per cent., while Muhammadans have increased by ·98, and Christians by ·27, which together exactly make up the difference. It should however be taken into account that the total population in the same period fell by 2·5 per cent.

Hindus.—Under the term Hindu have been included all natives of this part of India who do not properly come under one of the other headings. The Hindus are nominally divided into four castes, which are entirely separate from each other, and between whom no connection by marriage or otherwise is permitted. The distinction is complete in every sense, hereditary and personal, and it is impossible for any member of these castes to be other than what his birth made him, unless indeed he should transgress some law binding on his particular caste beyond the possibility of pardon or expiation. In such a case the

punishment is expulsion from the community or loss of caste, when the unfortunate individual becomes contemptible in the eyes of all, and his place henceforth is amongst the lowest Pariahs, the dregs of Hindu society. Even the most despised caste would decline to admit him on terms of social equality, even though he had been originally one of the heaven-born Brahmans. The first or highest caste is the Brahman or priestly class; the second the Kshatriya or military class; the third is the Vaisya class, composed of husbandmen and merchants; and the fourth is that of the Súdras, and comprehends artisans, labourers and agriculturists.[1] Besides these there are many castes unrecognized by the four grand divisions, whose manners and customs are governed by laws of their own, and who are as exclusive in their way as any of the four above mentioned.

Caste,[2] originally called *varṇa*, colour, but now more usually *játi*, birth, was doubtless at first a distinction of race based on difference of complexion, and intended to prevent degeneration from intermixture of the fair-skinned Aryan conquerors with the dark-skinned earlier settlers, or the black aboriginal tribes. The tradition of the common origin of the four pure castes or tribes from the head, arms, thighs, and feet of Brahma, points to them collectively as forming eventually one nation, each class distinguished from the others by reason of its occupation, which was probably hereditary. But numerous other mixed castes were always found among the great body of the population. The statements in Manu suffice to show that endless ramifications had taken place in his time through intermarriages of different castes, and he assigns separate names to an enormous number of new castes that sprang from these connections. "Indeed, it is evident that some of the lowest castes, perhaps many, were in part derived from the highest," says Mr. Sherring, who also writes:—"Had the creation of new castes continued to be made in succeeding ages with the same ease and rapidity as they were in these earlier times, it is plain that the caste system would have destroyed itself, in two ways,—first, by the multiplication of new castes throughout the land, and, secondly, by the intermarriages of all the castes. The increased strictures imposed upon the castes, especially upon the primary ones, and the prohibition of irregular marriages—that is, of marriages of members of one caste with

[1] Strong opposition was manifested on the part of certain classes in the census of 1891 to be graded among Súdras, accompanied with strenuous efforts to be included among Brahmans.

[2] From *casta*, Portuguese for race or breed. According to a passage in the Maha Bharata, the colour of Brahmans is white, of Kshatriyas red, of Vaisyas yellow, of Súdras black.

members of another,—gave in later years strength and vitality to a system which otherwise must soon have become extinguished. At what epoch this fundamental change in its constitution was made is not known." [1]

In Mysore the various castes are probably as numerous as in any other part of India of equal extent. The natives of the Province, by a fanciful arrangement, recognize 101 as the limit to the total number, but in the enumerators' forms of the recent census it was found that 864 castes had been returned, more than double the number given in 1871. Some of these, though returned in different localities under different names, doubtless belonged originally to the same stock. A few families or individuals probably separated from the main body, and having removed to another part of the country, either adopted a new name or were given one by their neighbours. There is every reason to believe that in some similar manner the number of castes is even now constantly increasing. Disputes arise, and the caste divides into two factions, each headed by some influential man or family; they refuse to associate with each other or to intermarry, and unless in a short time some common interest compels the parties to re-unite, a separate caste or sub-division is permanently formed, which adopts some peculiarity of its own to distinguish it from the original.

The agricultural, artisan and trading communities are termed *paṇas* or professions, which are eighteen in number. These *paṇas* are divided into two factions, called Bala-gai and Yeḍa-gai, or right and left hands. A large number of castes belong to one or other of these divisions. All Brahmans, Kshatriyas, and most of the Súdras are considered neutral. Although the right- and left-hand factions are said to include only eighteen trades, there are many castes which adhere to one side or the other, but their numbers do not seem to be taken into account.

The following are the castes composing the two factions :—

Right-hand Faction.

Baṇajiga ...	... Traders.
Wokkaliga	... Cultivators.
Gáṇiga ...	... Oilmen who yoke only one bullock to the mill.
Rangáre ..	... Dyers.
Láḍa ...	... Mahratta traders.
Gujaráti ...	... Gujarát merchants.

Left-hand Faction.

Pánchála, comprising :—

Baḍagi ...	... Carpenters.
Kanchugára	... Copper or brass smiths.
Kammára	... Iron smiths.
Kal-kuṭiga	... Stone-masons, and
Akasále...	... Goldsmiths.

[1] *Hindu Tribes and Castes*, Intro. xvii. Gôtamîputra Sâtakarni, who reigned in the second century, is said, in an inscription at Nâsik, to have prevented the mixing of the four castes (*varna*).—*Arch. Surv. W. Ind.*, iv., 109.

Kámáṭi	Labourers.
Jaina	Jain traders.
Kuruba	Shepherds.
Kumbára	Potters.
Agasa	Washermen.
Besta	Fishermen or Palanquin bearers.
Padmasále	A class of weavers.
Náyinda	Barbers.
Uppára	Salt-makers.
Chitragára	Painters.
Golla	Cowherds.
Holeya, the lowest right-hand caste.	

Bhéri	A class of Nagarta traders.
Dévánga	Weavers.
Hegganiga	Oilmen who yoke two bullocks to the mill.
Golla or Dhanapála	Cowherds who transport money.
Béda	Hunters.
Yákula	Cultivators.
Paḷḷi or Tigala	Market gardeners.
Mádiga, the lowest left-hand caste.	

The Baṇajigas and Linga Baṇajigas are the foremen of the right-hand faction. They say that all the eighteen *paṇas* or professions enumerated above belong to them, and that the nine *paṇas* of the left-hand are separate. The Pánchálas and Nagartas, who are at the head of the left-hand faction, contend that the eighteen *paṇas* are equally divided between the two factions, and that the nine above enumerated belong to them. In the main it is evidently a struggle for precedence between the artisans and the traders, or between followers of the old-established handicrafts and innovators who brought in the exchange of commodities with other parts, supported by producers and ministers to luxury. It has been found impossible to obtain a uniform, authentic, and complete list of the castes composing each faction, but the statement above is only doubtful in the case of one or two of the intermediate castes, and perhaps Komatis should take the place of Jains, and Toreya that of Yákula. The works referred to as authorities are *Sahyádri Khaṇḍa* and *Ellés'a-vijaya*, both said to be of the time of the rise of Vijayanagur in the fourteenth century, but the information has not been found in the former, and the latter work is not forthcoming.

The origin of the distinction between the two divisions is founded on fable,[1] and is said to have taken place at Conjeveram, where the goddess Káli placed certain castes on her right hand and others on her left. The two parties have ever since disputed as to the relative honour accorded to each side. The division appears to be of comparatively modern origin, as no mention of it has been found in any ancient work.[2] It is, moreover, confined entirely to the south of India. Each

[1] There is also a right- and left-hand division of Sakti worshippers, the rites of the former being principally magical, of the latter bloody and licentious. But there seems to be no connection between the cases.

[2] There is indeed a doubtful passage in the *Mahawanso* which may be supposed to refer to it, and if so, the institution would seem to be of great antiquity. When the Pándya princess was sent from Madura to Ceylon, in response to an embassy from

party insists on its exclusive rights to certain privileges on all public festivals and ceremonies, and it not unfrequently happens that one side usurps the supposed and jealously guarded rights of the other. On such occasions a faction fight is almost sure to ensue. Cases are recorded where the carrying of an umbrella, or wearing particular coloured flowers in the turban, has given rise to severe outbreaks accompanied by bloodshed. The opposition between the two divisions is still kept up, but apparently not with the same bitterness as in former times. In fact some of the castes seem in the late census to have been averse to own themselves as belonging to either hand, preferring to admit adhesion only to the eighteen paṇa or the nine paṇa, while over 100,000 made no return at all in the matter. The figures actually obtained were, 1,693,461 as belonging to the eighteen paṇa (the right-hand), and 503,439 as belonging to the nine paṇa (the left-hand).

The right-hand claim the exclusive privilege of having twelve pillars in the *pandal* or shed under which their marriage ceremonies are performed (allowing to the left only eleven); of riding on horse-back in processions, and of carrying a flag painted with the figure of Hanumán.[1]

The two factions are also styled Désa and Péṭe (in some places Náḍu). The reason given is that Linga Banajigas, who are at the head of the right-hand division, not being original natives of the place, were called Désavalas or outsiders, and the others Péṭe or Náḍuvalas.

In the recent census of 1891 the old caste gradation has been set aside in favour of classifications according to occupation, and, as regards Hindus, according to the numerical importance of the castes. The results of the former are given under the following prescribed heads :—

	Class of Occupation	Numbers	Percentage
A	Agricultural	1,665,442	33·69
B	Professional	290,704	5·88
C	Commercial	470,570	9·52
D	Artisan and Village menial	1,877,941	37·99
E	Vagrant minor Artisans and Performers, &c.	344,055	6·96
	Races and nationalities	291,168	5·89
	Others, not stated	3,724	0·07

The following is a different return of occupations based on sources of livelihood. Of the total number set down as thus supporting themselves the actual workers or bread-winners form only 34·27 per cent., the remainder being dependants, chiefly women and children :—

king Vijaya soliciting her hand in marriage, she is said (according to one version) to have been accompanied by a thousand members of the eighteen castes and five different classes of workmen.

[1] For caste insignia, see *Ind. Ant.* iv, 345.

Class of Occupation	Males	Females	Total	Percentage
Government	122,327	113,838	236,165	4·77
Pasture and Agriculture	1,685,445	1,630,558	3,316,003	67·07
Personal service ...	55,182	54,157	109,339	2·21
Preparation of material substances.	221,819	212,610	434,429	8·78
Commerce, Transport and Storage ...	90,094	87,284	177,378	3·58
Professions	40,187	39,825	80,012	1·61
Indefinite and Independent ...	268,397	321,881	590,278	11·92

Analysis of the preceding table into the various prescribed orders supplies the following further information. The actual number of separate occupations is 634. To the percentage of each on the population of the State has been added, for comparison, the percentage of similar occupations in British India :—

	Total	Percentage in Mysore	Percentage in India
Government—			
Administration... ...	213,751	4·32	1·95
Defence ..	22,233	0·45	0·23
Service of other States	181	,,	0·18
Pasture and Agriculture—			
Live Stock	23,106	0·47	1·27
Agriculture	3,292,897	66·61	59·79
Personal Service—			
Domestic & Sanitary ...	109,339	2·21	3·91
Preparation of Materials—			
Food and Drink ..	62,819	1·27	5·07
Light and Fuel ...	23,188	0·47	1·23
Buildings ...	30,508	0·62	0·50
Vehicles and Vessels ...	862	0·02	0·05
Supplementary articles	10,057	0·20	0·40
Textile Fabrics and Dress ...	145,493	2·94	4·39
Metals and Precious Stones ...	73,602	1·49	1·33
Glass and Earthenware ...	27,421	0·55	0·82
Wood and Cane ...	33,177	0·67	1·50
Gums, Drugs and Dyes	2,843	0·06	0·14
Leather ...	24,459	0·49	1·14
Commerce, Transport and Storage—			
Commerce	160,967	3·26	1·63
Transport and Storage	16,411	0·33	1 38
Professions—			
Learned and Artistic ...	76,980	1·56	1·97
Sport and Amusements ...	3,032	0·06	0·05
Indefinite and Independent—			
Unskilled Labour ...	493,678	9·99	8·87
Undefined	2,826	0·06	0·54
Independent of work ...	93,774	1·90	1·66

A supplementary table shows the numbers of those who combine with their hereditary occupations a certain amount of land cultivation :—

	No	Per cent		No	Per cent
Government ...	8,333	... 24·7	Commerce	2,138	... 6·1
Pasture and Agriculture	317	... 1·0	Professions	1,706	... 4·8
Personal service ...	3,583	... 10·6	Indefinite and Independent...	4,657	... 13·9
Preparation of materials	13,100	... 38·9	Total ...	33,834	

The classification of the main Hindu castes according to numerical strength yields the following results, the percentage to the total population being also shown in the case of those above 100,000. The capital letters indicate the class of occupation as contained in the first table above :—

Over 100,000.

Wokkaliga	A	... 1,341,849	... 27·14	Beda ...	E	... 217,128	... 4·39
Holeya ...	D	... 520,493	... 10·51	Bráhmaṇa	B	... 183,541	.. 3·71
Lingáyita	A B C	. 483,159	... 9·77	Golla ...	D	... 128,995	... 2·60
Kuruba ...	D	... 349,037	... 7·06	Banajiga ...	C	... 114,735	.. 2·32
Mádiga	D	. . 239,575	... 4·84	Woḍḍa ...	E	... 107,203	... 2·16

50,000 to 100,000.

Besta	D	... 99,897	Neyigára	D	... 86,986
Akkasále	D	... 98,181	Agasa	D	... 85,671
Uppára	D	... 89,123	Tigala	A	... 56,710

20,000 to 50,000.

Maráṭa...	A	... 44,446	Gáṇiga	D	... 35,808
Kumbára	D	... 40,809	Komaṭi	C	... 29,054
Iḍiga	D	... 39,937	Koracha	A	... 24,494
Lambáṇi	A	... 39,137	Nagarta	C	... 22,964
Náyinda	D	... 37,296	Kshatriya	A	... 21,795

10,000 to 20,000.

Sátáni	B	... 19,987	Darji	D	... 10,664

5,000 to 10,000.

Ráchevár ...	A B D E	... 9,554	Naṭuva	B	... 7,476
Jógi	E	... 9,410	Kammára	D	... 6,250
Baḍagi	D	... 8,646	Mudali	C	... 5,437

1,000 to 5,000.

Méda	E	... 4,261	Bhaṭ Ráju	B	... 1,388
Domba	E	... 2,500	Dásari	B	... 1,178
Láḍa	C	... 2,046	Iruliga	B	... 1,156
Góṇiga	D	.. 1,426	Buḍabuḍike...	E	... 1,092

Below 1,000.

Garudiga	E ...	876	Gujaráti	C ...	71
Móchi...	D ...	746	Sudugádusidda ...	E ...	46
Sannyási	B ...	684	Baniya	C ...	41
Pille	A ...	559	Gondaliga	E ...	29
Gosáyi	B ...	424	Márvádi	C ...	21
Kanchugára ...	D ...	396	Pandáram	E ...	15
Jalagára	D ...	258	Uriya	A ...	8
Bairági	B ...	222	Karma	E ...	7
Monda	E ...	189	Káyast	B ...	6
Náyar...	A ...	117	Sániyar	E ...	3
Kanakkan	B ..	108	Multáni	C ...	2
Sillekyáta	E ...	93	Ját	C ...	1

The totals of these groups may be thus stated, showing the number of castes under each and the percentage to the total Hindu population:—

			Total	Per cent
10 castes of	over 100,000		3,685,715 ...	79·50
6	,,	50,000 to 100,000 ...	516,568 ...	11·13
10	,,	20,000 to 50,000 ...	335,740 ...	7·24
2	,,	10,000 to 20,000 ...	30,651 ...	0·66
6	,,	5,000 to 10,000 ...	46,773 ...	1·00
8	,,	1,000 to 5,000	15,047 ...	0·32
24	,,	below 1,000	4,922 ...	0·10

The classes contained in the first table of occupation are subdivided into certain groups, and the different castes may be described in the order in which they fall under these heads.

In the Agricultural class (A) the first group is called "military and dominant," and comprises Kshatriya, Mahratta andRáchevár.

Kshatriya.—The total number is 21,824, composed principally of 12,287 Kshatriyas, 7,895 Rajputs, and 1,629 Rájapinde. Under the first occur the following subdivisions,—Bais, Bintakúr, Bondili, Dhátri, Govar, Kamsi, Kotári, Rájakula, Ráju (Kanda, Kannada and Mopúr). The Rajput tribes are,—Chám, Chandrabansi, Chhattri, Chavan, Hindustani, Rajput Gauda, Rohila, Singh, Sálár, Súrajbansi, Thákúr (Chandra, Dekal, Gayá, Gaharvariya and Navá), Talukhandiya and Tambóli. Under Rájapinde are included Arasu, Bada Arasu, and Komarapatta. There are also 12 Kodaga or Coorgs. The distribution in the Districts is as follows:—

Caste.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Kshatriya ...	2,455	783	898	3,740	1,347	1,205	1,450	410
Rajput	1,857	947	990	1,611	364	1,668	166	92
Rajapinde ...	30	68	92	1,317	—	24	98	—
Total	4,342	1,798	1,980	6,668	1,711	2,897	1,714	502

The Kshatriyas and Rajputs are principally in the army and police. The Rájapinde includes the Arasu, to which belongs the Royal family of Mysore, and other castes connected with the ruling house.

Maráta, or **Mahratta.**—There are 44,446 of these, of whom over 10,600 are in each of the Bangalore and Mysore Districts, 4,640 in Kolar, and about 3,000 in each of the other Districts. The subdivisions are said to be,—Bhaniya, Baruva, Kine, Kshatrabhánu, Lankekára, Manga, Rávuta, Bhúsa and Kumári; Kine and Bhúsa being more numerous than the others. Their principal occupation is military service, especially as cavalry and rough riders. But the majority have for some time past taken to cultivation and menial service. The Mahrattas are commonly called Aré by the Mysore people.

Ráchevár.—Those belonging to the Agricultural class number 3,696, including the subdivision of Telugu Ráchevár, and 66 Raṇagára. More than a third are in Mysore District, 870 in Bangalore, half that number in Hassan, Kolar, and Tumkur, with 10 in Shimoga. There are no Ráchevár in Chitaldroog, but it has 15 Raṇagára. Both claim a royal connection.

The second agricultural group is the most important one of Cultivators, and contains 128,168 Lingáyita, 1,342,882 Wokkaliga, and 56,710 Tigala, distributed as shown below, with 117 Náyar,[1] nearly all in the Civil and Military Station of Bangalore, and 559 Pille,[2] mostly in Mysore, Kolar, and Bangalore Districts.

Caste.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Lingáyita ...	13,194	1,421	8,971	52,264	19,260	13,958	9,943	9,157
Wokkaliga ...	225,511	163,160	179,206	325,557	171,323	135,069	73,496	69,560
Tigala	29,192	10,156	14,718	1,222	714	197	491	20
Total	267,897	174,737	202,895	379,043	191,297	149,224	83,930	78,737

The principal divisions of the *Lingáyita* in this class are Gauḍamane 58,487, Malava 795, and Pancháchára Gauḍa 68,886; which include the subdivisions Gauḷiga, Gurusthala, Noṇaba and Sáda.

Wokkaliga.—In addition to 163,502 returned simply by this name, the following are the most important tribes:—Gangaḍikára 593,205, Morasu 131,950 (besides Beral-koḍuva 8,066), Sáda 106,407, Reḍḍi (Koḍati, Peddakanṭi, Pákanáṭi, Neráṭi, Kamme, Honne, and Hema), 84,653, Kunchaṭiga 84,504, Noṇaba 63,803, Haḷepaika 15,570, Hálu 14,778, Haḷḷikára 13,492, Telugu 12,316, Velláḷa (Belláḷa and Tuluva)

[1] Including Achpille, Agamuḍi and Panán.

[2] Including Kaḷḷar and Vellála.

9,842, Uppina Koḷaga 9,842, Dása 9,433, Musaku 8,754, Pálya 4,116, Roddugára 3,744, Láḷagonḍa 1,959, Svalpa 899, Náḍu 588, Aramuḍi 242, Koṭegára 218, Yellamakápu 171, Konkaṇiga 159, Kanesálu 137, Toṭagára 117, Velnáṭi 26. The following subdivisions are not separately returned :—A'di, Agni, Agramudi, Aladakápu, Angalika, Báchaṇige, Baḍagar, Beḷagúḍe, Belakuváḍi, Bhogár, Chittala, Dasavantige, Gaḍakanṭi, Gausaṇige or Gosangi, Ghaṇiya, Hosadevara, Kamawokkal, Kannaḍa, Karale, Kariga, Káru, Karukal, Kolama, Koluva, Kondakaṭṭe, Konga, Koratakápu, Kottadevarakápu, Kumbi, Kudika-wokkal, Kúlibedaga, Kunṭe, Malavaru, Mudali, Musaku, Muttu, Paḍayachinayakan, Palayar, Pályakár, Pályagár-gauḍa, Pámár, Panasakápu, Panneri, Pelagunda, Peṭṭigesálina, Púḍa, Punamale, Ráyaroddugára, Reḍḍi (Anche, Arava, Bellála, Kammaḍi, Kápu, Konḍi, Neita, Ráju, Tenugu, and Vaḍaga), Síme, Sírdevara, Sitabhaira, Sóle, S'oshya, Togaṭa, Tuluva, Valasakápu, Válu, Vanṭa, Vásudeva, Velama, Vírabhadrakápu, Vellála (Jahala, Lingakaṭṭi and Pánḍya), Yedayellama, Yalanáṭi, Yalavolu, Yélumaneyavaru.

The following statement, showing the location of the principal great classes in the several Districts, is instructive :—

Wokkaliga.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Gangaḍikára ...	105,284	519	64,478	271,935	126,443	9,081	13,386	2,089
Morasu	46,505	84,263	997	21	138	22	4	—
Sáda	3,367	4,556	8,891	3,078	4,194	39,669	14,664	27,988
Reḍḍi	24,466	40,267	1,640	8,503	352	1,014	355	8,056
Kunchaṭiga ...	11,840	663	44,231	3,488	3,828	8,082	1,614	10,758
Noṇaba	159	—	30,654	2,010	7,444	8,552	11,119	3,865
Halepaika ...	—	—	—	—	—	12,576	2,994	—
Hálu	3	—	—	—	6,818	238	7,719	—
Hallikára ...	2,414	260	5,148	2,409	1,399	935	802	125

The Gangaḍikára are the most numerous of the Wokkaligas, being over 44 per cent. of the whole number, and purely Kannaḍa. They are found principally in the centre and south of the country, and represent the subjects of the ancient province of Gangaváḍi, a Ninety-six Thousand country, which formed an important part of the Ganga empire. The name Gangaḍikára is a contraction of Gangaváḍikára. At the present day the Gangaḍikáras are followers some of Siva and some of Vishnu. Of the former some wear the linga and others not. These sects neither eat together nor intermarry. The guru of the Vishnu worshippers is the head of the Sri-Vaishnava Brahmans, who lives at Melukote. In addition to being cultivators, the Gangaḍikáras act as farm labourers and as porters.

The Morasu are Wokkaligas chiefly of Kolar and Bangalore Districts. They appear to have been originally immigrants from a district called Morasa-náḍ, to the east of this country, whose chiefs formed settlements in the neighbourhood of Nandidroog. The section called Beraḷ-koḍuva (or finger-giving) had a strange custom, which, on account of its cruelty, was put a stop to by Government. Every woman of the sect, previous to piercing the ears of her eldest daughter preparatory to her being betrothed in marriage, had to suffer amputation of the ring and little fingers of the right hand. This was performed, for a regulated fee, by the blacksmith of the village, who chopped off the last joint of each finger with a chisel. If the girl to be betrothed were motherless, the mother of the boy to whom she was to be betrothed was bound to submit to the mutilation unless she had already made the sacrifice. The story invented to account for this barbarous custom is given in the first edition. Since its prohibition the women content themselves with putting on a gold or silver finger-stall or thimble, which is pulled off instead of the end of the finger itself. The principal sanctuary of the Morasu Wokkaligas is at Síti-beṭṭa in the Kolar taluq, where there is a temple of Vírabhadra.

Of the other large tribes of Wokkaligas, the Sáda abound mostly in the north and west. They include Jains and Lingáyits, Vaishnavas, and Saivas. Not improbably they all belonged to the first originally. In the old days many of them acted in the Kandáchár or native militia. They are not only cultivators but sometimes trade in grain. The Reḍḍi are chiefly in the east and north, and have numerous subdivisions. To some extent they seem to be of Telugu origin, and have been supposed to represent the subjects of the ancient Raṭṭaváḍi, or kingdom of the Raṭṭas.

The Noṇaba, in like manner, are relics of the ancient province of Noḷambaváḍi or Noṇambavádi, a Thirty-two Thousand country, situated principally in the Tumkur and Chitaldroog Districts. It is in these parts and the west that they are now located. At the present day they are by faith Lingáyits, the residence of their chief guru being at Gandikere, near Chiknayakanhalli. The acknowledged head of the Noṇabas, though no more than an ordinary cultivator, is the present descendant of an original Honnappa Gauḍa, and named after him : he lives at Hosahalli, near Gubbi.

The Halepaika, inhabiting the north-west, are of interest, and have already been described above (p. 212). The Hálu Wokkaligas are most numerous in Kadur and Hassan Districts. As their name implies, they combine the keeping of cows or buffaloes and sale of milk (*hálu*) with other agricultural pursuits. The Haḷḷikára are also largely engaged

with cattle, and the breed of their name is the best in the Amrit Mahal. The Lálagonda, principally confined to Bangalore District, are not only farmers, but hirers-out of bullocks, gardeners, builders of mud walls and traders in straw, etc. The Vellálas are the most numerous class of Wokkaligas in the Civil and Military Station of Bangalore.

There do not appear to be any peculiarities deserving of notice in regard to the numerous other classes of Wokkaligas, who are only distinguishable by name. And as in each successive census a good many designations returned in the previous one do not recur, it is evident that some classes are known by more than one name, and probably use different ones on different occasions.

Tigala.—These are skilful kitchen and market gardeners, mostly of Tamil origin, though they have long lost the use of that language. In addition to those called simply by the tribe-name, the following principal divisions are noted :—Ulli, Vanne, Palli, Reddi, Arava, and Tóta, as well as the subdivisions Agra Vannia, Agni, Brahmarishi, Dharmarájukápu, Ennéri, Gauda, Hale Tigala, Halli, Kandapalli, Kannada, Pándya, Rája, Sámba, Vannikula, and Yánádi. Nearly a half are in the Bangalore District, most of the remainder being in Tumkur and Kolar.

The next agricultural group is Forest and other Hill tribes, numbering altogether 67,040. The following are the classes included under this head, with their distribution :—

Caste.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Lambáni ...	3,315	751	2,977	1,084	2,846	14,127	8,794	5,243
Koracha } Korama } ...	5,246	3,414	2,470	4,169	1,437	4,398	2,059	1,301
Kád Kuruba ...	219	147	1,450	400	45	—	8	—
Iruliga	1,042	22	67	—	1	—	—	-

The **Lambani**, or Lambádi, also called Sukáli and Brinjári, have the following subdivisions :—Banjári, Bhútya, Dhúmavatpáda, Khetavat, Rámavatpáda, and Sabávat. They are a gipsy tribe that wander about in gangs, accompanied by large herds of bullocks, especially in the hilly and forest tracts where there are few good roads, engaged in the transport of grain and other produce. They first prominently came to notice towards the end of the last century, during the Mahratta and Mysore wars, when immense numbers of them were employed by the armies of both sides as foragers and transporters of supplies required

for the troops.[1] Of late years many of them have been employed as labourers on coffee-estates, and some have even partially abandoned their vagrant life, and settled, at least for a time, in villages of their own. These, called Thánḍas, are composed of clusters of their usual rude wicker huts, pitched on waste ground in wild places. The women bring in bundles of firewood from the jungles for sale in the towns.

The Lambánis speak a mixed dialect, called Kutni, largely composed of Hindi and Mahratti corruptions. In a police report regarding these people, the late Dr. Shortt stated, "that their social system is unique, and that they are guided exclusively by their own laws and customs; that each community is governed by a priest, who exacts and receives implicit obedience, and who exercises, under the cloak of religion and supernatural agency, the undisputed power of life and death over them. They maintain the closest secrecy regarding their customs, and would sooner forfeit life than divulge them. Infanticide, human sacrifice, witchcraft and sorcery prevail among the different communities, who can recognize one another by masonic signs."

The women are distinguished by a curious and picturesque dress, completely different from that worn by any other class. It consists of a sort of tartan petticoat, with a stomacher over the bosom, and a mantle, often elaborately embroidered, which covers the head and upper part of the body. The hair is worn in ringlets or plaits, hanging down each side of the face, decorated with small shells, and terminating in tassels. The arms and ankles are profusely covered with trinkets made of bone, brass, and other rude materials. The men wear tight cotton breeches, reaching a little below the knee, with a waist-band ending in red silk tassels, and on the head a small red or white turban.

It appears[2] that the Lambánis here have twenty-six clans, and claim a descent from one Cháḍa, who left five sons, Múla, Móta, Naṭhaḍ, Jógḍa, and Bhímḍa. Chaván, one of the three sons of Múla, had six sons, each of whom originated a clan. At some remote period a Brahman from Ajmir married a girl of Chaván's family, and gave rise to the Vaḍtya clan, who still wear the sacred thread. A Mahratta from Jotpur, in northern India, also allied himself with Raṭhoḷ, Chaván's brother, and founded the Khamdat clan. There are no descendants of Móṭa here, but those of Naṭhaḍ are called Mirásikat, Paradi or Vágri, and live by catching wild birds. The Jógdas are Jógis. The

[1] A correspondent from the British camp at that time terms them "the worthy and inoffensive Brinjaris."—*Cal. Gaz.* II, 318. But they are often credited with inborn thieving and marauding propensities.

[2] According to the last Census Report (1891).

Bhímdas are itinerant blacksmiths, known as Bail Kammár. There is even a class of Lambáni outcastes, called Dhálya, who are drummers and live separately. They principally trade in bullocks. The Lambánis acknowledge the Gosáyis as their gurus, and reverence Krishna; also Basava, as representing the cattle that Krishna tended. But their principal object of worship is Bánashankari, the goddess of forests.

The **Koracha** and **Korama** have already been referred to above (p. 214). Although virtually the same people, the following sub-divisions are separately noted. For Korachas: Aggada, Dabbe, Gongadi, Kannaḍa, Telugu, Uppu, Uru. For Koramas:—Bettale, Ganṭu, Gázula, Kannaḍa, Seṭṭi, Sátubeḍa, Uppu, Vaḍḍa, Yáḍava, Yanṭumúle. For Koravas:—Maval, Palchankóṭi, Uppu. They wander about with large droves of cattle and asses, conveying salt and grain from one market to another. They carry with them the frame-work of a rude description of hut, and while one part of the tribe proceeds with the baggage animals, the others settle for a time in some convenient spot, where they erect their huts and employ themselves in making mats and baskets, begging and stealing, until their proximity becomes a nuisance to the villagers and they are compelled to move on. They are described as thieves and robbers from childhood, and are frequently associated with Brinjaris and other vagrants in burglaries, dacoities, and acts of violence, often escaping detection owing to their complete arrangements for obtaining information. They speak Telugu and Tamil, and are said to have a peculiar gipsy language of their own, with a system of signals which enables them to converse with the initiated unobserved. They have no idols to which they pay particular homage, and only invoke Tirupati Venkatramana when in distress, vowing small offerings of money to the temple should they escape.

The men tie up their hair in a large bunch or chignon on one side of the top of the head, in precisely the same manner as we find the men's hair arranged on most of the old sculptured stones of the country. The women wear an immense number of strings of small white and red beads and shells round the neck and falling over the bosom.

The **Kadu Kuruba** and **Jenu Kuruba** have already come under notice (above, p. 213), also the Iruḷiga, who are much like the latter; and certain other forest and hill tribes have likewise been referred to.

We now pass to the Professional class (B), which, under the groups of Priests, Devotees, and Temple-servants, includes 277,086 persons, distributed as follows, 183,451 being Bráhmana, 62,918 Lingáyita, 19,987 Sátáni, 8,132 Jaina, and 2,508 various devotees.

Sect.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Bráhmana ...	29,882	23,930	17,099	43,013	17,151	29,379	17,072	6,015
Lingáyita	6,577	3,347	8,544	11,990	8,965	9,620	7,094	7,885
Sátáni	3,742	1,937	3,801	4,480	3,660	682	989	696
Jaina	359	876	1,526	1,928	1,246	422	1,264	416
Dásari, &c. ...	381	629	413	302	167	232	220	163

Brahmana.—The Brahmans throughout India, with a few exceptions, belong, according to original location or language, either to the Pancha Gauḍa (the five tribes north of the Krishna), or to the Pancha Dráviḍa (the five tribes south of that river). The following are the subdivisions, together with the numbers in Mysore pertaining to each so far as can be gathered from the census returns of 1891 :—

Pancha Gauda.		*Pancha Drávida.*	
Kányakubja (N.W.P.)	28	Kárṇáṭaka or Kannaḍa	94,329
Sárasvata (Punjab)	133	A'ndhra or Telugu	33,672
Gauda (Delhi and Bengal) ...	2,067	Drávida or Tamil	32,853
Maithila (Behar)	. .	Maháráshṭra or Mahratta ...	20,087
Utkala (Orissa)	. .	Gúrjara or Gujarati	2

These seldom intermarry, and though the tribes living here have long been intermixed, they generally retain in their families the language of the country from whence they originally came.

The Brahmans are farther subdivided into a number of *gótras*, the original progenitors of which were seven principal *rishis* or sages, namely, Bhrigu, Angiras, Atri, Vis'vámitra, Kásyapa, Vas'ishṭha, and Agastya. In the unlimited ramifications of gótras which have branched out from the parent stems, the line of descent is exhibited in the *pravara* or pedigree, and a man and woman of the same gótra and pravara never marry together. The connection of the gótra is entirely in the male line, a woman on marriage being affiliated to the husband's gótra. The following are the strongest *gótras* in Mysore, or those containing over 1,000 in each :—

Bháradvája ...	25,950	Kaus'ika	9,893	Vádhúla ...	2,788
Kásyapa ...	24,151	Kaundinya ...	9,074	S'ándilya ...	2,495
Vis'vámitra ...	11,771	Harita	8,471	Maudgalya	2,252
Vas'ishṭha ...	11,592	Gautama	5,897	Maunabhárgava	1,920
S'rívatsa ...	10,480	Jamadagni	3,294	Gárgyáyana	1,162
A'treya ...	10,307	A'ngirasa	2,929	S'aṭhámarshana	1,050

Altogether sixty-nine gótras are represented here, the remainder, in alphabetical order, being :—Achyuta, Agastya, Ambarísha, As'valáyana, Bádaráyana, Bárhaspatya, Chópagáyana, Dévarája, Dhananjaya, Gálava, Gauḍa Sárasvata, Ghṛitasams'a, Havikarma, Kálakaus'ika, Kámakáyana, Kaṇva, Kapi, Kátyáyana, Kósala, Kunḍali, Kutsa, Lóhita, Maitréya, Mánḍavya, Maunjyáyana, Mitravasu, Móhana, Nistudhana, Parás'ara, Párthiva, Paulastya, Paurakutsa, Pútamánasa, Rájéndra, Rathítara, S'álankáyana, S'álávatsa, Sankalika, Sankarshana, Sánkhyáyana, Sankṛiti, Santasa, S'aunaka, Svatantrakapi, Upamanyu, Vádhryas'va, Vaikhánasa, Vais'ampáyana, Vámana, Vishnuvardhana, Vyása.

Kshatriyas, and others who are not Brahmans, may properly assume the gótra of their *puróhita*, or family priest and domestic chaplain, who is of course a Brahman. But certain classes who are ambitious of being reckoned as Brahmans, have invented gótras for themselves of apocryphal origin.

In addition to the gótra, there is the *s'ákha*, or particular branch or school of the Veda which each Brahman professes to follow in the performance of his sacrifices and rites. Classified on this basis 91,638 are Rig-vedis, 77,972 Yajur-vedis, and 12,776 Sáma-vedis. There are none apparently who acknowledge adhesion to the Atharva veda. Some classes that are not Brahmans boldly proclaim themselves followers of a fifth veda.[1]

All the Brahmans here, moreover, belong to one of three main sects :—Smárta, Mádhva, and S'rívaishnava. The following is their distribution, the totals being 129,550, 32,070, and 20,764 respectively :—

Sect.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Smárta	18,939	14,802	12,430	29,911	11,842	23,267	15,060	3,299
Mádhva	7,309	5,834	3,210	6,336	1,057	4,983	1,104	2,237
S'rívaishnava ...	3,354	2,689	1,367	6,751	4,161	1,124	862	456

All three sects are composed of either Vaidíkas or Laukíkas, the former, those who have devoted themselves entirely to religion, and live on charity; the latter, those who attend to worldly affairs. The

[1] Somewhat on the same principle that the Press in England calls itself the Fourth Estate, supplementary to the three recognized governing estates of king, nobles and commons.

distinction is merely an individual one, as different members of the same family may be either Vaidikas or Laukikas according to inclination.

The Smárta derive their name from *smṛiti*, the code of revealed or traditional law. They worship the triad of Brahma, S'iva, and Vishnu under the mystic syllable *Om*, and while admitting them to be equal, exalt S'iva as their chief deity. They hold the pantheistic Vedánta doctrine of Advaita or non-dualism, believing God and matter to be identical, and everything but an atom of the divinity, they themselves being parts of the Supreme Being. The founder of the Smárta sect was S'ankara or S'ankarácharya, the Hindu reformer of the eighth century, and their guru is the S'ringeri Swámi, designated the Jagad Guru. The probably very ancient sect of the Bhágavata, or the Bhágavata sampradáya, numbering 12,788, are reckoned as Smártas, but they incline more to Vishnu worship, and follow the Tengale in the time of observing the Ekádas'i fasts. The guru of the Bhágavatas is at Talkáḍ. The distinctive marks of a Smárta Brahman are three parallel horizontal lines of pounded sandalwood, or of the ashes of cow-dung, on the forehead, with a round red spot in the centre, but the Bhágavatas wear perpendicular Vaishnava marks.

The Mádhva are so called from Mádhva or Madhvácharya, the founder of the sect, who arose in South Kanara in the thirteenth century. They worship both Vishnu and S'iva, but more particularly the former. They profess the doctrine of Dvaita or dualism, considering the Creator and the created to be distinct, and their final absorption to be in the future. It appears that they may be divided into the Vyásakúṭa and the Dásakúṭa. The former adhere strictly to the religious teachings of the founder, which are entirely in Sanskrit. The latter base their faith on hymns and writings in the vernacular, which they can understand, of persons of their sect distinguished as Dásas or servants of God, and they go about with musical instruments singing these in honour of the Divine Being. A Mádhva Brahman is known by a black perpendicular line from the junction of the eyebrows to the top of the forehead, with a dot in the centre. A Smárta may become a Mádhva, and *vice versâ*, but the former happens oftener than the latter. In such cases intermarriages between persons of the same circle are not prohibited, though they embrace different doctrines, but the wife always adopts the tenets of her husband.

The S'rívaishnava, also called Aiyangár, are worshippers of Vishnu, as identified with his consort Lakshmi or S'rí, whence their name. The founder of their sect was Rámánuja or Rámánujácharya, who lived in the Chola and Mysore countries at the beginning of the twelfth

century, and after him they are also called Rámánujas in some parts of India. Their creed is the Vis'ishtádvaita, which differs from the Dvaita in attributing both form and qualities to the Deity. In Mysore their guru is the Parakálaswámi of Melukote. They are the most exclusive of all the Brahmans in points of food and intermarriage, the orthodox among them requiring curtains to screen their food from the gaze of others, even their own relations and fellow-sectarians. They form two principal divisions, the Tengale, or southern, numbering 7,161, and the Vaḍagale, or northern, numbering 12,914. The distinction between the two arises from dispute as to certain doctrinal points, said to be eighteen in number,[1] which were formulated some four centuries back, in Sanskrit and Tamil verses, by Manaváḷ Mahámuni on the side of the Tengale, and by Vedánta Desikar on the side of the Vaḍagale, and the dispute has placed a gulf between the parties ever since. There are some differences also in social observances. The Tengale, for instance, do not subject widows to the tonsure, which is usual among other Brahman sects. They also give more prominence to the vernacular versions of their Sanskrit sacred writings. The S'rívaishnava are known by the *náma* or trident on the forehead, the centre line being yellow or red, and the two outer ones white. The Tengale distinguish themselves from the Vaḍagale by continuing the central line of the trident in white for some distance down the nose.

The three main sects above described contain nearly eighty recorded subdivisions, distinguished by names which are mainly territorial or numerical in origin. The derivation of many of the names appears to be unknown even to those who bear them.

Those included under Smárta and Mádhva, in alphabetical order, are :—Adi S'aiva, Aruvattu-wokkalu, A'ruvélu, A'ruvelu Niyógi, Ashṭa-sahasra, Baḍaganád, Bhagavata-sampradáya, Bodháyana, Brihach-charaṇa, Chitpávan, Dés'astha, Devalaka or Sivárádhya, Drávida, Haḷe Karṇáṭaka or Haḷa Kannaḍiga, Havika or Haiga, Hoysaniga, Kambálúr, Kamme (Babbúr, Kannaḍa, Ulcha and Vijayapura), Kandávara, Karáḍe, Karṇáṭaka, Kásalnáḍ, Kátyáyana, Kavarga, Kílnáḍ, Konkaṇ-astha, Kóṭa (or Kaikóṭa and Ippatnálkaravaru), Koṭís'vara, Kus'asthala (or Senve), Mádhva (Vaishnava and Pennattur), Mulikináḍ or Muri-kináḍ, Nambúri, Nandavaidíka, Niyogi, Panchagráma, Práknáḍ, Prathamas'ákhe (Kánva, Mádhyánjana or Yájnavalkya), Sahavási, Sanketi, S'árvarya, S'írnáḍ, S'is'uvarga, S'ivalli (or Kurus'ivalli), S'ukla Yajus's'ákhe, Telagháṇya, Toṭada Tigaḷa, Tulava, Uttráji (or Uttrádi), Vaḍama, Vádhyama, Vangípuram, Véginád, Velnáḍ.

[1] The majority are detailed in the Census Report for 1891.

The strongest of these divisions numerically are,—those returned simply as Smárta, 23,374; Badaganáḍ, 23,019; Des'astha, 17,127; Kamme (Babbur, Kannada and Ulcha), 14,265; Mulikináḍ, 11,188; Hoysaniga, 8,328; Drávida, 7,856; Haḷe Karṇáṭaka, 7,526; Vaishnava (Mádhva), 7,280.

The Baḍaganáḍ had their origin in the northern (*baḍaga*) districts (*náḍ*), and speak Kannaḍa: they are both Smártas and Mádhvas. The Des'astha are immigrants from the Mahratta country, and mostly retain the use of Mahratti: they are Smártas and Mádhvas, the latter preponderating; but the difference of faith is no bar among them to intermarriage and free social intercourse. The Babbur Kamme are all Smártas; the Kannaḍa Kamme and Ulcha Kamme are both Smártas and Mádhvas: nearly all speak Kannaḍa, a few Telugu also. The Kamme country seems to have been to the east of the Kolar District. The Mulikinád or Murikinád are Smártas from the Kadapa district, speaking Telugu. The present chief priest of S'ríngeri is of this sect. The Hoysaniga, also called Vaishaniga, are chiefly Smártas and speak Kannaḍa. Their name may be derived from the old Hoysala or Hoysana kingdom. The Dráviḍa, Vaḍama (1,454), and Brihachcharama or Pericharana (1,293), may be taken together: they are immigrants from the Tamil country, and are Smártas, speaking Tamil, and a few Telugu. The Haḷe Karṇáṭaka or Haḷa Kannaḍiga are mostly confined to the Mysore District, where they are generally village accountants. There are two branches—Múgúr and Sósile. They are nearly all Smártas, and their language is Kannaḍa. Though their claim to be Brahmans was apparently not denied, they were for some reason, till recently, under a sort of ban, and often called by a nickname; but about twenty-five years ago they were publicly recognized by both the S'ringeri and Parakála maṭhas. Other Brahmans, however, have no intercourse with them, social or religious.

Of the other sects, the A'ruvélu, or the Six Thousand (4,486), are both Smártas and Mádhvas, and speak both Kannaḍa and Telugu. The A'ruvélu Niyógi are a branch of them, who are laukikas, or devoted to secular callings. The Aruvaṭṭu-wokkalu or Sixty families (4,997) originally formed a portion either of the A'ruvélu or the Kamme, but were selected as his disciples by Vyásaráya Swámi, of the Mádhva faith, two or three centuries ago. The small sect of Kambálúr or Tóṭada Tigala (113), mostly in Shimoga District, are also connected with the A'ruvélu. Moreover, the Uttaráji or Uttarádi (425), appear to have branched off from the A'ruvélu some three or four centuries ago, when they became the disciples of S'rípáda Ráya of Venkatagiri.

The addition of these several offshoots would bring the number of the A'ruvélu up to 9,921.

The Chitpávan (2,345) are Mahrattas and Smártas. The Havika or Haiga (3,246) are immigrants from Haiga, the ancient name of North Kanara, and they are almost entirely confined to the west of the Shimoga District. They are Smártas, and are now principally engaged in the cultivation of areca-nut gardens. According to tradition they are of northern origin, and were introduced by one of the Kadamba kings, in the third or fourth century, from Ahichchhatra. This would bring them from Rohilkand, but Ahichchhatra may be only a learned synonym for Haiga (see note above, p. 216). The name Havika is said to be a corruption of Havyaka, or conductor of sacrifices, and perhaps it was for such purposes that they were imported at a time when there were no Brahmans in those parts. The small communities of Kandávara (213), Kavarga (7), Kóṭa and Kóṭis'vara (25), Kus'as-thala, S'is'uvarga, properly S'ishyavarga (139), with the S'ivalli (2,397), are all Tulu Brahmans, immigrants from South Kanara, the ancient Tuluva, and mostly located in the western Districts. They engage in agriculture and trade, and speak Tulu and Kannaḍa. The Karáde or Karháde (253) are Mahrattas from Karhád. Some of them are employed in the Revenue Survey. The Konkanastha (296) are also Mahrattas from the Konkan, and are Smártas. The above two sects do not intermarry, but mix freely in other respects. The Nandavaidika (1,257) are from the Teluga country: both Smártas and Mádhvas: language Telugu and Kannaḍa. The Prathamas'ákhe (5,027) and Súklayajus's'ákhe or Mádyándina are both Smártas and Mádhvas: they speak Telugu and Kannaḍa. The Sahavási are immigrants, like the Chitpávan, from the Mahratta country.

The Sankéti (2,522) are Smártas from Madura, and speak a corrupt mixture of Tamil and Kannaḍa. There are two branches, the Kaus'ika and the Beṭṭadpur, so named from the places in which they first settled, which are in the Hassan and Mysore Districts. They eat together, but do not intermarry as a rule. The Kaus'ika, however, who were the first comers, are said occasionally to get wives from the Beṭṭadpur, but in such cases the girl's connection with the latter altogether ceases. The Sankéti reverence a prophetess named Nácháramma or Nangiramma, who seems to have been instrumental in causing their migration from their original seats. The story about her is given in the first edition. The Síranáḍ (3,490) have two divisions, the Hale Síranáḍ, who are Smártas, and the Hosa Síranáḍ, who are chiefly Mádhvas. Both speak Kannaḍa and derive their name probably from Sira in the Tumkur District. The Vengipuram (193) are all Smártas, speaking Telugu.

The Velnáḍ (3,181) are also Telugu Smártas, and resemble the Murikináḍ. They are mostly in the south and east. The Véginaḍ are Smártas, and speak Kannaḍa. There is only one member returned of this sect, a man in Kolar District.

The subdivisions of the S'rívaishnavas, in alphabetical order, are :— Bhaṭṭarácharya, Embár, Hebbár (Mélnáṭár), Hemmigeyár, Kaḍámbiyár, Kandáḍe, Kílnáṭár, Manḍyattár, Maradúrár, Méṭukunṭeyár, Morasanáḍ, Munchóḷi or Chóḷi, Nallánchakravarti, Prativádi-bhayankarattár, Somes'ánḍál or Attán-kúṭattár, Tirumaleyár. No less than 16,817 have returned themselves simply as S'rívaishnavas.

The Bhaṭṭarácharya are Tengales, and generally Vaidikas: they speak Telugu and Tamil. The Embár are Tengales from S'rírangam, and speak Tamil. The Hebbár (1,724) are descendants of immigrants from the Tamil country, who settled in five different villages, and were hence also known as the Panchagráma (358). These places were Gráma (Hassan District), Kaḍaba (Tumkur District), Molúr (Bangalore District), Hangala (Mysore District), and Belur (Hassan District). Hebbár was the old Brahman designation of the headman of a village, as Heggaḍe was of the Jains, and these names still linger in the west. It is said to be a corruption of *heb-hárava*, or the head Brahman. The settlers in Gráma, it appears, had acquired this title, which owing to their connection was extended to all the Panchagráma. They all eat together and intermarry: are both Tengale and Vaḍagale, and speak Tamil. The Hemmigeyár are all Vaidikas and Vaḍagale, settled at Hemmige near Talkád, which is said to have been granted by the king of the day to one of their ancestors as a reward for distinguishing himself in a literary discussion. Their language is Tamil. The Manḍyattár (566) are immigrants from a village called Manḍyam near Tirupati. They are located in Melukóte and Mandya, the latter being named after their native place. They are all Tengale and speak Tamil. The Maradúrár are similar settlers at the neighbouring village of Maddúr, which is a corruption of Maradúr. The Meṭukunṭeyár are Vaḍagale and disciples of the Parakálaswámi. They speak Telugu and Tamil. The Munchóli and Chóli, so called because they retain the lock of hair in front of the head, are Tengale, and their language is Tamil. The Nallánchakravarti are Vaḍagale from Conjeveram, and are all Vaidikas, speaking Tamil. The Prativádi-bhayankarattár, meaning the terrifiers of opponent disputants, are Tengale and Vaidikas from S'ríangam: language Tamil. There are only two men of this sect put down, both in Kolar District. The Somes'ándál are Vaḍagale, and chiefly Vaidikas, from the same part: language Tamil. The Tirumaleyár (262) are descendants of Koṭi-

kaṇyádána Tátácharya, whose name implies that he had given away a million virgins in marriage, a son of the guru to Ramánujácharya. They are all Vaḍagales and Vaidikas, and seem to have come from Conjeveram. They speak Tamil.

The Temple servants or Brahmans who act as *pújáris* are all Vaidíkas, but are considered to have degraded themselves by undertaking such service, and the other Brahmans will have no connection with them. The S'ivadvija or Sivaṇambi (605) and Tambaḷḷa (2) are of the Smárta sect, and officiate in S'iva temples. The Vaikhánasa (407) and Páncharátrál (142) belong to the S'rívaishnavas, and officiate in Vishnu temples. The Tammaḍis who officiate in certain Siva temples are Lingáyits.

Lingayita.—The priestly orders among these are the A'rádhya (11,618), Gurusthala (12,129), Jangama (38,215) and Víra S'aiva (956). The A'rádhya are a sect of Lingáyit Brahmans. They assume the *janivára* or sacred thread, but call it *s'ivadára*. The Gurusthala are a class of Jangama who take the place of gurus in performing certain domestic ceremonies for which the gurus do not attend. The Jangama are priests chiefly of the Panchama Banajiga and Devánga. They are divided into Charanti and Virakta, the former being under a vow of celibacy. The Jangama derive their name especially from the portable or *jangama* linga worn on the person (which indeed is characteristic of all Lingáyits) as distinguished from the *sthávira* or fixed linga of the temples, and also perhaps from their being itinerant. In addition to the linga they wear a necklace of beads called *rudráksha*, and smear their whole bodies with the ashes of cow-dung. A Jangam will not permit himself to be touched by any person who does not wear the linga. They wander about and subsist on charity, and their children generally adopt the same profession.

Sátáni.—These are regarded as priests by the Holeya and other inferior castes, while they themselves have the chiefs of the S'rívaishnava Brahmans and Sannyásis as their gurus. Their subdivisions are Khádri Vaishnava, Náṭachárasúrti, Prathama Vaishnava, Sameráya or Samagi, Sankara, Sáttádhava, Súri, Telugu Sátáni, Venkaṭapurada and Vaishnava. Some are employed in agriculture, but as a rule they are engaged in the service of Vishnu temples, and are flower-gatherers, torch-bearers and strolling minstrels. Buchanan supposed them to be the remains of an extensive priesthood who formerly held the same relation to the Holeya that the Brahmans now do to the Súdras. But as a sect they appear to be of more modern origin. They call themselves Vaishnavas and correspond with the Baisnabs in Bengal. They are followers of Chaitanya, from whose name, or that of Sátánana, one of his

R

disciples, their designation may be derived. Properly speaking, they are not a caste, but a religious sect of votaries of Vishnu, more especially in the form of Krishna, who have ceased to regard caste distinctions. In the north of India admission to the sect is obtained by payment to a Gosáyi and partaking of food with other members of the sect.

Jaina.—The priests of this religion have been returned as Tírthankara (2,564) and Pítámbara (5). The Jaina yatis or clergy here belong to the sect of Digambara, properly, clad with space, that is nude, but they cover themselves with a yellow robe, and hence the name Pítámbara. An account of the Jaina will be found under Religion.

The Devotees and religious mendicants are,—among Hindus, Dásari (1,178), Sannyási (684), Gosáyi (424), and Bairági (222): among Lingáyits, Ayya, Ganadhisvara, Shaṭsthala and Vaḍer (956): among Jains, Digambara (5,477), Svetámbara (85), and Báváji (1).

Dásari are mendicants belonging to different castes of Súdras. They become Dásas, or servants, dedicated to the god at Tirupati, by virtue of a particular vow, made either by themselves or relatives at some anxious or dangerous moment, and live by begging in his name. Dásaris are strictly Vishnuvites, as the vow is taken only by castes who are worshippers of that deity. Dásaris are always invited by Súdras on ceremonial days and feasted. The subdivisions are Dharma, Gúḍama, S'anku, and Tírunáma Dásaris.

A **Sannyási** is properly a man who has forsaken all. He has renounced the world, and leads a life of celibacy and abstemiousness, devoting himself to religious meditation and abstraction, and to study of the holy books. He is considered to have attained to a state of exalted piety that places him above most of the restrictions of caste and ceremony. It is the fourth *ás'rama* or final stage of life for the three higher orders. The number of Brahman Sannyásis is very small, and chiefly confined to those who are gurus or bishops of the different sects. These are as a rule men of learning and the heads of monasteries, where they have a number of disciples under instruction who are trained for religious discussion. They are supported entirely by endowments and the contributions of their disciples. Periodical tours are undertaken for the purpose of receiving the offerings of their followers. They travel in great state, with elephants, horses, and a retinue of disciples. On the approach of a guru to any place all the inhabitants of pure birth go out to meet him : the lower classes are not admitted to his presence. On being conducted to the principal temple, he bestows *upadésa* or *chakrántikam* on such as have not

received these ceremonies (which may be considered analogous to confirmation by prelates in the English Church), and distributes holy water. He inquires into their matters of contention or transgressions against the rules of caste, and having disposed of these, hears his disciples and other learned men dispute on theological subjects. This is the grand field for acquiring reputation among the Brahmans.[1] The gurus are bound to spend all they get in what is reckoned as charitable distribution, that is in the support of men and buildings dedicated to the service of the gods. But the majority of the Sannyásis (of whom no less than 412 are in the Kolar District, and 175 in Tumkur) are a class of Súdra devotees who live by begging and pretend to powers of divination. They wear the clerical dress of red ochre and allow the hair to grow unshorn. They are married and often have settled abodes, but itinerate, and their descendants keep up the sect and follow the same calling.

The **Gosáyi** are followers of Chaitanya, the Vishnuvite reformer of the sixteenth century, whose original disciples, six in number, were so called. They never marry, but the order is recruited from all the four principal castes, especially the two highest, and those who join are cut off for ever from their own tribes. Such as lead a strictly ascetic life are called Avadhúta, while those who engage in commerce and trade are called Daṇḍi. Most of those in Mysore belong to the latter subdivision, and are wealthy merchants from northern and western India, settled in Mysore, Bangalore and other chief towns, dealing largely in jewels and valuable embroidered cloths. The profits of their traffic go to their Mahant or teacher. The property of either Avadhúta or Daṇḍi devolves on his *chela* or adopted disciple.

The **Bairági** are followers of Rámánand, the Vishnuvite reformer, who early forsook the cares of the world and gave himself up to Vairágya, or the renunciation of all worldly desires, becoming the first Vairági or Bairági. From his four disciples arose four sects, each of which is composed of Nihangs, those who are purely ascetics and lead secluded lives, and Sámayógis, who marry and live with their families; but both orders can eat together. Many profess to be physicians and herbalists, while others pretend to be alchemists. All are beggars, and as pilgrims resort to holy places, especially to Tirupati. Their usual route in the south is from Rámes'vara to Totádri, which is in that neighbourhood, S'rírangam, Gopalswámibeṭṭa, Melukóte and Tirupati. They are also called Sádhu and are all worshippers of Vishnu and

[1] These disputations are said to be very similar to those which were common among the doctors of the Romish Church seven or eight hundred years ago.—*Buchanan.*

adherents of S'rívaishnava Brahmans. They are mostly taken from the Súdra castes, but many of them wear the triple cord and profess themselves to be Gauda Brahmans from the north. Half the number at the census time were in Bangalore District and a considerable number in Kadur. There were none in Hassan and Shimoga, and only three in Chitaldroog.

The **Vaḍer**, a corruption of Oḍeyar or Vaḍeyar, meaning lord or master, are Lingáyits like the Jangama. They are held in great veneration in their sect and are feasted by laymen on all important occasions, especially at S'ivarátri, when their attendance is said to be in such great demand that they have to hurry from house to house, just tasting a morsel in each. Mostly in Kadur, Mysore and Shimoga Districts; none in Kolar and Hassan.

The **Digambara** and **Svétámbara** are the two great sects of the Jains. The derivation of the former name has already been given above. The Svétámbara are those who are clad in white. This section is found more in the north of India, and is represented by but a small number in Mysore. The Digambara are said to live absolutely separated from society and from all worldly ties. Most numerous in Mysore, Tumkur and Kadur Districts.

Quitting the religious groups we come to that of the professional Writers, of whom there are 108 Kanakkan and 6 Káyastha, all in the Civil and Military Station of Bangalore. The former may be allied to the Karṇams and Kanakka-pillai (commonly called Conocopoly) of the Madras country, who are village and other accountants. The Kanakkan include the subdivisions of Karṇikar, Sírkanakkan, and Sírkarṇikar. The Káyastha are from northern India and have a subdivision called Mádúr.

Next are Musicians and Ballad-reciters, the well-known Bháṭs or Bhaṭráju, numbering 1,388, and found chiefly in the eastern and southern Districts. They speak Telugu and are supposed to have come from the Northern Sarkars. They were originally attendants on Hindu princes as professional bards, singing their praises and reciting ballads on the wondrous deeds of their ancestors.[1] Now, from want of

[1] The name is a curious approximation to that of the western *bard*, and their offices are nearly similar. No Hindu Rája is without his *bháts*. Haidar, although not a Hindu, delighted to be constantly preceded by them, and they are an appendage to the state of many other Musalman chiefs. They have a wonderful facility in speaking improvisatore, on any subject proposed to them, a declamation in measures, which may be considered as a sort of medium between blank verse and modulated prose; but their proper profession is that of chaunting the exploits of former days in the front of the troops while marshalling for battle, and inciting them to emulate the glory of their ancestors.—*Wilks*, in 1810.

their ordinary employment, they have descended into the mendicant class. They are principally worshippers of Vishnu.

The Dancers and Singers follow, composed of Naṭuva (1,804) and Kaikola (5,672). The subdivisions are Binkali Kaikola, Bógaváru, Devadási, Gáyaka, Lókabálike, Náyaksáni. The women dance and sing; the men are musicians and accompany them on various instruments. Nearly all the Kaikola are in Mysore District: those that speak Kannaḍa are of Lingáyit connection and called Basavi. The Naṭuva are most numerous in Kolar and Mysore Districts: those who speak Telugu are of the Telugu Banajiga caste. The females are generally prostitutes and attached as dancing girls to Hindu temples. The class is recruited either from those born in it or those adopted from any of the Hindu castes. Sometimes the parents of a girl have dedicated her to a temple even before her birth; in other cases good-looking girls are purchased from parents who are too poor to maintain them.

The last professional group is the Chitári, who are classed as Ráchevár, and composed of Chitragára, also called Baṇṇagára (912), mostly in Mysore, Tumkur and Chitaldroog Districts, and Jínagára (3,728), nearly all in Shimoga District. They are painters, decorators and gilders, and make trunks, palanquins, lacquer toys and wooden images for temples, cars, etc.

The Commercial class (C) consists entirely of Merchants and Traders. The following are the principal divisions according to strength, with their distribution. There are also 161 Baniya, 2 Múltáni, and 1 Ját, all in the Civil and Military Station of Bangalore; 83 Márváḍi, and 71 Gujaráṭi.

Caste.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Lingáyita ...	19,700	6,139	21,289	91,257	39,006	49,333	21,052	44,297
Banajiga	28,437	36,296	12,408	17,811	3,735	6,709	5,115	4,224
Kómaṭi	4,766	8,890	5,304	3,210	1,766	1,175	1,338	2,605
Nagarta	5,289	3,004	315	439	77	7,966	5,223	651
Mudali	1,625	714	380	1,305	167	229	225	492
Jaina and S'rávaka	108	18	305	230	65	2,974	43	200
Láḍar	53	18	134	1,185	91	11	338	216

Of the 292,073 Lingáyita, forming 62 per cent. of the trading community, 222,389 are returned by that name alone and preponderate in Mysore District. Other divisions are Linga Banajiga (37,322), most numerous in Chitaldroog and Hassan Districts; Sajjana (30,424),

more than half in Shimoga District; Sthaladava (1,243), nearly all in Bangalore District; Panchamasále (182), nearly the whole in the Civil and Military Station of Bangalore; Hirchasube (101), almost all in Mysore District; and Kórisetti (52), all in Tumkur District. Further subdivisions are Badagalava, Bannadava, Basale, Bávane, Gáda Lingáyita, Gaddigeyava, Jóti Banajiga, Kannadiga, Kanthapávade, Kaikola, Mélpávade, Nírumélinava, Pétemane, Tógasetti, and Turukáne Banajiga. In the rural parts they are perhaps engaged more in agriculture than in trade.

The *Banajiga* number 114,735, and form 24 per cent. of the traders. The strongest section is that of Telugu Banajiga (59,495), the greater number in Kolar and Bangalore Districts, as are also those put down simply as Banajiga (17,779). The Setti (14,875) are most numerous in Tumkur District and the Civil and Military Station of Bangalore. The Dása (7,925) are chiefly in Mysore District. The Bale (5,378), makers and vendors of glass bangles, are chiefly in the Civil and Military Station of Bangalore. The Yele (3,601), or betel-leaf sellers, are most numerous in Mysore and Tumkur Districts. Dévádiga (2,315), bangle-sellers, nearly all in Shimoga District, and the rest in Kadur District; Náyadu (1,141), most numerous in Bangalore and Chitaldroog Districts; Huvvádiga (905) or flower-sellers, nearly all in Kadur District; Arale (340) or cotton-sellers, mostly in Mysore and Bangalore Districts; Sukhamanji (313), nearly all in Bangalore District, and the rest in Kolar District; and Muttarasu (7), all in the Civil and Military Station of Bangalore, make up the remaining chief sections. The minor subdivisions are A'di, Aggada, A'kuléti, Bhérisetti, Banta, Bidára, Dés'áyi, Dharmaráju, Gájulabalji, Gandhúdibalji, Gérballi, Gaudu, Ganga, Kaláyi, Kamme, Kannada, Kápáli, Kavare, Kempti, Kempu, Kolla, Kotta, Lingabalji, Marasi, Mudusárebalji, Múrusíre, Mutta, Muttaráju, Pagadála, Pasaluváte, S'iváchára, Sóliyasetti, Vírasaggada, and Yellamma. The principal occupations of Banajigas are agriculture, labour and trade of all kinds.

The *Kómati* (29,054) and *Nagarta* (22,964) are principally found in towns and large trade centres. Both claim to be Vaisyas, and the former are specially considered to be such. The Kómati subdivisions are Kannada, Myáda, Setti, Trikarma, Tuppada, and Yavamanta. The majority are worshippers of S'iva and a few of Vishnu, but the chief object of reverence is the goddess Kanyaka Parames'vari. All eat together and intermarry. They deal in cloth and, except spirits, in all kinds of merchandise, especially money and jewels, but never cultivate the ground nor become mechanics. The Nagarta, besides 4,297 only so named, chiefly in Bangalore and Kolar Districts, are subdivided into

Ayódhyánagara (39), all in Bangalore District; Bhéri (229), nearly all in Kolar District; Námadhári (15,428), mostly in Shimoga and Kadur Districts; and Vais'ya (2,971), most numerous in Bangalore and Kolar Districts. There are also minor sections called S'iváchár and Vaishnava. Of the Nagarta some are worshippers of Vishnu and others of S'iva: of the latter a part wear the linga and others not. The three sects do not intermarry or eat together. They are dealers in bullion, cloth, cotton, drugs and grain, but do not cultivate the ground or follow any handicraft trade, though some act as porters.

The *Mudali* (5,437) or Mudaliyár, with the subdivision Agamudi, are of Tamil origin, from Arcot, Vellore and other places, the offspring of traders, servants and contractors who followed the progress of British arms. The majority are in the cities of Bangalore and Mysore. They are a thriving and money-making class, and many of them are employed under Government: they also engage in trade of all kinds, and as contractors for buildings and other public works.

Of the *Jaina* (1,981) and *S'rávaka* (1,962) the great majority of the former and the whole of the latter are in Shimoga District, and probably represent a very ancient trading community of those parts. The Lá{d}ar (2,046) are traders from the Mahratta country, and are principally settled in the Mysore District.

The *Baniya* are wealthy money-lenders from other parts. Their divisions are Agarvála, Bakkal, Jaman, Multáni, and Oswál. The *Márvádi* (Dodaya and Kumbi), *Gujaráti* and *Multáni* are traders from the countries after whose names they are called. The Márvádi deal in pearls and cloths. The Gujaráti are small money-lenders, and also trade in jewels, cloths and other articles.

The class Artisan and Village Menial (D) includes the following:—

Smiths, Carpenters and Masons ...	Páncháła	113,731
Barbers	Náyinda	37,296
Tailors	Darji	10,664
Weavers and Dyers	Neyigára, Góniga	88,413
Washermen...	Agasa	85,671
Cowherds, &c.	Golla	128,995
Shepherds	Kuruba	346,768
Oilpressers	Gániga	35,808
Potters	Kumbára	40,809
Salters	Uppára	89,123
Gold-lace makers	Sarige	15
Fishermen	Besta	99,897
Toddy drawers	I'{d}iga	39,937
Village Watchmen, &c.	Holeya	520,493
Leather workers	Mádiga, Mochi ...	240,321

The subjoined table shows their distribution over the several Districts :—

Caste.		Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Pánchála	...	14,105	9,688	9,685	37,448	13,588	12,107	8,745	8,365
Náyinda	...	7,971	8,559	3,807	8,401	2,979	2,828	923	1,828
Darji ...	...	3,668	574	908	1,457	511	2,090	734	722
Neyigára	...	24,492	8,696	8,109	10,224	12,808	6,674	10,236	7,174
Agasa ...	...	11,447	10,327	10,323	19,435	10,456	13,103	4,186	6,394
Golla ...	...	20,430	20,022	38,237	5,445	5,212	3,995	4,149	15,892
Kuruba ...	...	41,407	35,304	38,186	115,805	40,730	23,683	26,255	25,398
Gániga ...	...	5,909	5,790	3,305	15,634	2,259	547	1,092	1,272
Kumbára	...	4,306	3,962	3,183	16,136	3,313	3,281	4,018	2,610
Uppára ...	...	1,516	3,127	11,568	34,717	8,566	10,956	10,000	8,673
Sarige ...	...	10	5	—	—	—	—	—	—
Besta ...	...	8,357	3,910	4,201	59,550	7,628	7,290	4,102	4,859
U'diga ...	...	2,569	1,708	5,348	8,450	2,757	10,944	3,882	4,279
Holeya ...	...	81,369	57,665	23,616	173,003	87,055	38,000	51,291	8,491
Mádiga ...	...	46,329	39,661	48,324	24,179	11,190	23,043	10,453	37,142

The *Pánchála*, as their name implies, embrace five guilds of artisans, namely, Agasále, or goldsmiths; Kanchugára, brass and copper smiths; Kammára, blacksmiths; Baḍagi, carpenters; and Kalkuṭaka, stone-masons. They profess to be descended from the five sons of Vis'vakarma, the architect of the gods, who severally adopted these professions. The various trades are not confined to particular families, but may be followed according to the individual inclination. The Pánchála wear the triple cord and consider themselves equal to the Brahmans, who, however, deny their pretensions. The goldsmiths are the recognized heads of the clan and have a caste jurisdiction over the rest.

The Agasále, or Akkasále proper (63,578), and goldsmith Pánchála (31,958) have also subdivisions called Bailu Akkasále or Róṭváḍ (337), Paṭṭár or Paṭṭari (747), Oja or Vájar (737), and Jalagára (258), as well as A'chári, Arava Pánchála, Manu, Maya, Panchagráma, Sajjana, Sonár, Sonájiband, Vaivaghni, Vis'va, Vis'vabrahma, and Vis'vaghni. Some are followers of S'iva and others of Vishnu, but the difference in religion is no bar to intermarriage or social intercourse. The most influential members are among the S'aivas and wear the linga, but they do not associate with any other linga-wearers. The Jalagára are the people who wash the sand of streams for gold. The majority are returned from Mysore District.

The Kanchugára (369) or brass and copper smiths are divided between the Bangalore and Mysore Districts. The section called

Gejjegára (27) are all in Mysore. These make the small round bells used for tying about the heads or necks of bullocks. Dancing girls also bind them to the ankles when dancing, and postal runners have a bunch at the end of the rod on which they carry the mail bags, the jingle giving notice of their approach.

The Kammára (6,250) or blacksmiths, include Bailu Kammára, Kaḷḷar and Karman. The Kammára is a member of the village corporation, and in addition to working in iron often acts as a carpenter as well. In the repair of carts and agricultural implements his services are constantly in demand.

The Baḍagi (8,643) or carpenters, and Gaundar (3), the latter confined to the Civil and Military Station of Bangalore, have sections called Pancháchára, Guḍigára, S'ilpi and Vis'vakarma. The Baḍagi is also a member of the village corporation, but the profession of carpentry is now taken up by other castes, such as Kunchiṭiga and Wokkaliga, not to mention Musalmans. The Guḍigára are specially the producers of the beautiful sandal-wood carving for which the Mysore country is famous. They are settled in Shimoga District, chiefly at Sorab. S'ilpi are properly sculptors, and might be classed among masons.

The *Náyinda* or barbers, also called Hajám, include a number of sections, namely, Balaji, Bajantri, Bengáli, Karṇáṭa, Kelasi, Konda, Kondamangala, Mangala, Náṭa, Náṭamangala, Reḍḍi, S'ilavanta, Teluga and Uppina. The Náyinda is a member of the village corporation. They speak both Kannaḍa and Telugu, and are generally employed as musicians as well as barbers: in the former capacity they are in great requisition at feasts and marriages. They include worshippers of both Vishnu and S'iva, the S'ílavanta being Lingáyits.

The *Darji* or tailors, besides 4,817 so returned, include Shimpi or Chippiga (12), Námdév (3,566) and Rangáre (2,269). The latter are also dyers and calico-printers. The Darji are immigrants from the Mahratta country and specially worship Viṭṭhóba or Krishna.

The *Neyigára* (86,986) are weavers proper, the Góniga (1,426) being specially sack weavers and makers of gunny bags (*góni*). The main divisions of the former are Devánga (49,006), Togaṭa or Dandaseṭṭi (13,300), Sále or Sáliga (10,255), Bilimagga (9,946), Séniga (105), Patvegár (3,174), Khatri (946), and Saurásh ṭraka (254). In these are included minor sections called Jáda, Kuruvina, Padmamurikínáti, Padmasále, Paṭṭasále, Paṭnúlukár, Sakunasále, and Singundi.

The Kannaḍa Dévánga are weavers who wear the linga, but they have no intercourse with the Linga Banajiga. They worship S'iva and Párvati, and their son Gaṇés'a, who is a special patron of their looms.

There are also Telugu Dévánga, who are of two sects, one of whom worship Vishnu and the other S'iva, but the latter do not wear the linga. This difference of religion is no bar to intermarriage, and the wife adopts the religion of her husband. The Togaṭa, most numerous in the eastern Districts, are of Telugu origin and worshippers of S'iva in the form of his consort Chauḍes'vari. They manufacture the coarse kinds of cloth that are worn only by the poorer classes. The Sále or Sáliga are also Telugu by origin, and comprise the Padmasále or Paṭṭasále, who are worshippers of Vishnu, and the S'akunasále, who are worshippers of S'iva and wear the linga. The two sects do not intermarry. The Bilimagga, most numerous in Mysore District, call themselves Kuruvina Banajiga, and regard the former designation as a nickname. They are an indigenous caste and speak Kannaḍa: worshippers of S'iva. The Séniga, confined to Kolar and Bangalore Districts, are a wealthy caste of weavers, immigrants from the lower Carnatic, and speak Kannaḍa. They specially manufacture cloths for female wear, of superior kind and high value. They are Lingáyits by religion, but are not friendly with the other Lingáyits.

The Paṭvegár, of whom the majority are in Bangalore District, are silk weavers and speak a language allied to Mahratti. They worship all the Hindu deities, but especially the S'akti or female energy, to which a goat is sacrificed on the night of the Dasara festival, a Musalman officiating as slaughterer, for which he receives certain fees. After the sacrifice the family of the Paṭvegár partake of the flesh. The caste have the reputation of not being over cleanly in their habits. The Khatri, all but two being in the Bangalore District, are also silk weavers, and in manners, customs and language are akin to the Paṭvegárs, but do not intermarry with them, though the two castes eat together. They claim to be Kshatriyas. The Sauráshtraka, commonly known as Paṭnúli or Jamkhánvála, are, all but 7, in the Bangalore District. They manufacture superior kinds of cotton and woollen carpets, and also shawls of cotton and silk mixture. They are worshippers of Vishnu.

The *Góniga* (1,205), as already described above, are sack weavers. More than a half are in the Bangalore District. Other divisions are Janapa (32) and Sádhuvams'astha (189), the latter all in Tumkur District. Some are agriculturists, and some grain porters.

The *Agasa* or Asaga are washermen. They are divided into Kannaḍa Agasa and Telugu Agasa, who neither eat together nor intermarry. But there are numerous subdivisions, named Belli, Dhobi, Halemakkalu, Iraganṭi Maḍiváli, Kápusákalaváḍu, Maḍiváli, Morasu, Murikináṭi, Paḍata, Sákalaváḍu, Tamil and Vannan. The

Agasa is a member of the village corporation and his office is hereditary. Besides washing he bears the torch in public processions and at marriages. The class seldom follow any other profession than that of washing. Both men and women wash. Their proper beasts of burthen are asses, and these are sometimes employed in carrying grain from one place to another. Their principal object of worship is Ubbe, the steam which causes the garments to swell out in the pot of boiling water in which dirty clothes are steeped. Animals are sacrificed to the god with the view of preventing the clothes being burnt in the Ubbe pot. Under the name of Bhume Deva there are temples dedicated to this god in some large towns, the services being conducted by pújáris of the Agasa caste. They also worship Vishnu and other gods. Their gurus are Sátánis.

The *Golla* are cowherds and dairymen. The Káḍu or forest Golla (21,820) are distinct from the U'ru or town Golla (15,618) and other Golla (82,357) who belong to villages, and the two neither eat together nor intermarry. The subivisions of the caste are very numerous and are returned as follows:—Alla, Arava, Bokkasada, Bígamudre, Chapprada, Chóliya, Doḍḍi, Eḍaiyar, Gauli or Kachche Gauli, Gaulbans, Gáyakaváḍí, Gópála, Gúdejangáliga, Hálu, Jambala, Kankár, Kannaḍa, Karaḍi, Karma, Karṇe, Kaváḍiga, Kempu, Kilári, Kolalu, Konár, Kúduchappara, Kuri, Mande, Nalla, Námadakula, Náyi, Páta, Páta-yádavalu, Púja, Punagu, Púri, Rája, Salja, Sambára, Soṇṇan, Svári, Tellapúsala, Telugu, Yaḍayar, Yákula, and Yádavakula. They worship Krishna, who is said to have been born in the caste. Formerly they, or a section of them, were largely employed in transporting money, both public and private, from one part of the country to another, and are said to have been famed for their integrity in such matters. From this circumstance they are also called Dhanapála or treasury guards. The Káḍu Golla are mostly in Tumkur District, and a good many in Chitaldroog District. They live in thatched huts outside villages and are inclined to be nomadic. Some of their customs resemble those of the Kádu Kuruba.

The *Kuruba* are shepherds and weavers of blankets or camblets (*kambli*). The Kádu Kuruba have already been noticed under forest and hill tribes. The remaining great body of the civilized are divided into two tribes, the Hande Kuruba and Kuruba proper, who have no intercourse with one another. The latter worship Bíre Dévaru and are Sivites. Their priests are Brahmans and Jógis. The caste also worship a box, which they believe contains the wearing apparel of Krishna, under the name of Junjappa. The subdivisions of the caste are Báne, Banige, Banni, Beḷḷi, Bírappana Wokkalu, Byálada,

Gauḍakula, Haḷe, Haḷḷi, Hálu, Heggaḍe, Hosa, Jádi, Jaṭṭedévara, Kambaḷi, Kanakaiyanajáti, Kannaḍa, Kenchála, Kotta, Kuri, Máji, Majjana, Majjige, Páta, S'ále, Sávanti, Suggala, and Toppala. The Hálu Kuruba (191,087), Hande Kuruba (7,944), and Kambali Kuruba (7,792), are mostly weavers of kamblis. Parts of Chitaldroog and the town of Kolar are noted for the manufacture of a superior kind of a fine texture like homespun. The women spin wool.

The *Gániga* are oilpressers and oilmongers. They are known by different names, according to the special customs of their trade, such as Heggáṇiga, those who yoke two oxen to the stone oil-mill; Kirugáṇiga (principally in Mysore District), those who make oil in wooden mills; Wonṭiyettu Gáṇiga, those who use only one bullock in the mill. They are also known collectively as Jótipaṇa or Jótinagara, the light-giving tribe. The other subdivisions are Kannaḍa, Telugu and Seṭṭi. There is a small section called Sajjana, who wear the linga and have no intercourse with the others. But the caste generally includes worshippers both of Vishnu and Siva.

The *Kumbára* are potters and tile-makers, and members of the village corporation. Of the two main divisions of Kannaḍa and Telugu, the former claim to be superior. The subdivisions are Gauḍakula, Gunḍikula, Kos'ava, Kulála, Návige, S'álivåhana, Tamil and Váḍama.

The *Uppára* or saltmakers are so called chiefly in the eastern Districts; in the southern they are called Uppaliga and in the western Mélusakkare. There are two classes, the Kannaḍa and the Telugu. The former are principally engaged in making earth-salt, and the latter as bricklayers and builders. The well to-do or Sreshṭha also undertake public works on contract and the erection of ordinary Hindu houses. They are both Vishnuites and S'ívites.

The small body of *Sarige* or gold-lace makers areRáchevár by caste. They are all in the Bangalore and Kolar Districts.

The *Besta* are fishermen, boatmen and palanquin-bearers. This is their designation principally in the east; in the south they are called Toreya, Ambiga and Parivára; in the west Kabyára and Gange-makkalu. Those who speak Telugu call themselves Bhoyi. There are some other smaller sections of inferior rank, named Beḷḷi, Bhoja, Chammaḍi, Kabbáliga, Pálaki, Pályapat, Ráyarávuta and Sunnakallu. The latter are lime-burners. Many of the females are cotton-spinners and some of the men are weavers of cloth. There are also some in the employment of Government as peons and in other capacities. Most of the caste are worshippers of Siva.

The *I'ḍiga* are toddy-drawers, their hereditary occupation being to

extract the juice of palm-trees and to distil spirits from it. In the Malnád they are known as Halepaika (15,000), and were formerly employed as soldiers under the local rulers. Many of them are now in household service. Most of them also hold land, and are agriculturists. The other subdivisions are Bilva, Dévar, Sigroyidalu, Telugu Sánár, Tenginahále. They worship all the Hindu deities, as well as S'aktis, and especially the pots containing toddy.

The *Holeya* and *Mádiga* form the great body of outcastes. The former have already been described above (p. 215). These, in addition to their duties as village watchmen, scouts and scavengers, are employed as field-hands, and in all kinds of manual labour. They also make various kinds of coarse cotton or woollen cloths in hand-looms, while the Alemán furnish recruits for the Barr sepoy regiments. There are two tribes, Kannada and Telugu Holeya, who eat together but do not intermarry. Their subdivisions are very numerous, but the following are said to be the principal ones:—Kannada, Gangadikára, Maggada, Morasu, Telugu, Tigula and Tamil Holeya or Pareya. The minor sections are Agani, Alemán, Balagai, Bellikula, Bhúmi, Chakra, Chalavádi, Chambula, Chavana, Chillaravár, Dásari, Gollate, Jhádmáli, Jintra, Jóti, Kálu, Karnátaka, Kápu, Konga, Kurupatte, Lókóttara-pareya, Madya, Mála, Masalu, Mattige, Nágaru, Nallár, Pále, Palli, Panne, Pasali, Rampada, Roppada, Sambu, Sangu, Sára, S'idlukula, Sómés'a, Tanga, Tangala, Tirukula, Tude, Tóti, Uggránada, Vadaga, Valange, Vanne, Varka, Velagi, Vellála, Valluvár, Veluva, Vanniyar, Vírabhagna and Vírasambu.

They are regarded as unclean by the four principal castes, and particularly by the Brahmans. In the rural parts, especially, when a Holeya has to deliver anything to a Brahman, he places it on the ground and retires to a distance, and when meeting one in a street or road he endeavours to get away as far as possible. Brahmans and Holeyas mutually avoid passing through the quarters they respectively occupy in the villages, and a wilful transgression in this respect, if it did not create a riot, would make purification necessary, and that not only on the part of the higher caste but even on the part of the lower. With all this, there is no restriction in the Mysore State on the acquisition of land or property by Holeyas, and under the various blending influences of the times—educational, missionary, and others—members of this class are rising in importance and acquiring wealth. So much so that in the cities and large towns their social disabilities are, to a great extent, being overcome, and in public matters especially their complete ostracism can hardly be maintained.

In the Maidán parts of the country, the Holeya, as the *kulavádi*, had

a recognized position in the village, and has always been regarded as an ultimate referee in cases of boundary disputes. In the Malnád he was merely a slave, of which there were two classes,—the *huṭṭál*, or slave born in the house, the hereditary serf of the family; and the *maṇṇál*, or slave of the soil, who was bought and sold with the land. These are, of course, now emancipated, and are benefiting by the free labour and higher wages connected with coffee plantations, often to the detriment of the areca-nut gardens, which were formerly kept up by their forced labour.

The Mádiga are similar to the Holeya, but are looked down upon by the latter as inferior. They are *tóṭi*, or village scavengers, and *nírganṭi*, or watermen, in charge of the sluices of tanks and channels, regulating the supply of water for irrigation. They are principally distinguished from the Holeya in being workers in leather. The carcases of dead cattle are removed by them, and the hides dressed to provide the thongs by which bullocks are strapped to the yoke, the leather buckets used for raising water in *kapile* wells, and other articles required by the villagers. They are also cobblers, tanners and shoemakers, and the increasing demand for hides is putting money into their purses.

Their subdivisions are Arava, Chakkili, Chammár, Gampa, Gampasále, Goppasále, Heḍigebúvva, Kanchala, Kannaḍa, Marabúvva, Morasu, Mátangi, Tirukula, Singáḍi, Tanigebúvva, Telugu, U'ru and Vainádu. They are worshippers of Vishnu, S'iva and S'aktis, and have five different gurus or maṭhs in the Mysore country, namely, at Kaḍave, Kóḍihaḷḷi, Kongarḷi, Nelamangala and Konkallu. They also call themselves Jámbava and Mátanga. There is, moreover, a general division of the caste into Des'abhága, who do not intermarry with the others. Though subordinate to the maṭhs above mentioned, they acknowledge S'rívaishnava Brahmans as their gurus. The Des'abhága are composed of six classes, namely, Biḷḷóru, Mallóru, Amarávatiyavaru, Munigaḷu, Yanamalóru and Morabuvvadavaru.

Certain privileges enjoyed by the Holeya and Mádiga in regard to temple worship will be found described in connection with Melukoṭe and Bélúr.

The *Móchi* (746) are not to be classed with the Mádiga, except in the matter of working in leather. They are immigrants, who, it is said, came into Mysore with Khasim Khan, the general of Aurangzeb, and settled originally in Sira and Kolar. They claim to be Kshatriyas and Rájputs, pretensions which are not generally admitted. They are shoemakers and saddlers by trade, and all S'aivas by faith. They have subdivisions called Gujarat, Kannaḍa, Kempala and Maráṭa.

The next class (E) is styled Vagrant Minor Artisans and Performers, and is composed of the following groups :—

Earth-workers and Stone-dressers	... Wodda	...	107,203
Mat and Basket-makers	... Méda	...	4,261
Hunters and Fowlers	... Béda	...	217,128
Miscellaneous, and Disreputable Livers	... Jógi, &c	...	10,884
Tumblers and Acrobats	... Domba, Jetti	...	3,703
Jugglers, Snake-charmers, &c ...	... Garadiga	...	876

The large and useful class of *Woḍḍas* is composed of Kallu Woḍḍa and Maṇṇu Woḍḍa, between whom there is no social intercourse, nor any intermarriage. Both worship all the Hindu deities and S'aktis, but a goddess named Yellama seems to be a special object of reverence. The Kallu Woḍḍa are stonemasons, quarrying, transporting, and building with stone, and very dexterous in moving large masses of it by simple mechanical means. They consider themselves superior to the Maṇṇu Woḍḍa. The latter are chiefly tank-diggers, well-sinkers, and generally skilful navvies for all kinds of earthwork, the men digging and the women removing the earth. Though a hard-working class, they have the reputation of assisting professional thieves in committing dacoities and robberies, principally, however, by giving information as to where and how plunder may be easily obtained. The young and robust of the Maṇṇu Woḍḍa of both sexes travel about in caravans in search of employment, taking with them their infants and huts, which consist of a few sticks and mats. Wherever they obtain any large earthwork, they form an encampment in the neighbourhood. The older members settle in the outskirts of towns, where many of both sexes now find employment in various capacities in connection with sanitary conservancy. The Woḍḍa, as their name indicates, were originally immigrants from Orissa and the Telugu country, and they generally speak Telugu. They eat meat and drink spirits, and are given to polygamy. The men and women of the caste eat together. The subdivisions are Bailu, Bhója, Bóyi, Háḷe, Jarupa, Jangalpaṭṭeburusu, Telugu, Tigala, Uppu and U'ru. They are most numerous in the eastern and northern Districts.

The *Méda* or Gauriga are mat and basket-makers, and workers in bamboo and cane. One-fourth are in Shimoga District, and a good number in Mysore and Kadur Districts.

The *Béda* or Náyaka consist of two divisions, Telugu and Kannaḍa, who neither eat together nor intermarry. One-third of the number are in Chitaldroog District, and the greater proportion of the rest in Kolar and Tumkur Districts. They were formerly hunters and soldiers by profession. Most of the Mysore Pallegars belong to this caste, and

the famous infantry of Haidar and Tipu was largely composed of Bédas. Now their principal occupation is agriculture, labour and Government service as revenue peons and village police. They claim descent from Válmiki, the author of the Rámáyana, and are chiefly Vaishnavas, but worship all the Hindu deities. In some parts they erect a circular hut for a temple, with a stake in the middle, which is the god. In common with the Golla, Kuruba, Mádiga and other classes, they often dedicate the eldest daughter in a family in which no son is born, as a Basavi or prostitute ; and a girl falling ill is similarly vowed to be left unmarried, which means the same thing. The main divisions are Hálu (3,929), Náyaka (15,453), Pállegár (48), Bárika, Kannaiyanajáti, Kirátaka, and Máchi or Myása (9,175). The minor subdivisions are Arava, Bálajógi, Gujjári, Halli, Kanaka, Modayavaru, Muchchalamire, Mugla, Nági, Telugu and Yanamala. The Máchi or Myása, also called Chunchu, call for special notice. Many of them live in hills and in temporary huts outside inhabited places. The remarkable point about them is that they practise the rite of circumcision, which is performed on the boys of ten or twelve years of age. They also eschew all strong drink, and that so scrupulously that they will not use materials from the date-palm in their buildings, nor even touch them. On the other hand they eat beef, but of birds only partridge and quail. Possibly these peculiarities may have arisen from forced conversion to Islam in the days of Tipu. With the Musalman rite they also combine Hindu usages at the initiation of boys, and in the segregation of women in child-birth follow the customs of other quasi jungle tribes. The dead are cremated, and their ashes scattered on tangadi bushes (*cassia auriculata*).

In the Miscellaneous group the *Jógi* (9,692) are the most numerous. They are mendicant devotees recruited from all castes. Their divisions are Gantijógi, Gorava, Helava, Jangáliga, Monda, Pákanáti, Pichchakunte, Sillekyáta and Uddinakorava. They mostly pretend to be fortune-tellers, while the Jangáliga and Pákanáti deal in drugs, and wander about calling out the particular diseases they profess to cure by means of their wares.

The *Budubudike* (1,092) are gypsy beggars and fortune-tellers from the Mahratta country, one section being called Busáre. They pretend to consult birds and reptiles, and through them to predict future events. They use a small double-headed drum, which is sounded by whisking it about so as to be struck by the knotted ends of a string attached to each side. The others of this group of beggars are Sudugádusidda (46), Gondaliga (29), Pandáram and Valluvar (15), Karma (7), and S'águiyar (3). The first are all in Shimoga District, and the last three in the Civil and Military Station of Bangalore.

The Tumblers and Acrobats include Domba (2,500) and Jaṭṭi (1,203). The former are buffoons, tumblers, and snake-charmers. They are supposed to be descendants of an aboriginal tribe from the north of India (Doms probably). The Jaṭṭi or Jeṭṭi, also called Mushṭiga in the western Districts, are professional athletes and wrestlers, or Malla. They areRáchevár by caste. Nearly a half are in the Mysore District. A number are maintained in connection with the palace, and are trained from infancy in daily exercises for the express purpose of exhibition. An interesting account of this order, as it existed at the beginning of the century, extracted from Wilks, was given in the first edition.

The group of Gárudiga and Móḍihiḍiyuva consists of jugglers, snake-charmers, and conjurers.

The last class (F) is styled Races and Nationalities, numbering 291,168, and includes the Musalmans and Europeans, with Eurasians and Native Christians. The following are the figures :—

Asiatic Races of reputed foreign origin—	
Musalmans	244,601
Parsis, Jews, Chinese, &c	79
Mixed Asiatic Races—	
Labbe	3,717
Pinjári	2,180
Pinḍári	2,048
Mápile and others	427
Non-Asiatic Races—	
English, Scotch and Irish	5,943
Other Europeans	288
Eurasians	3,931
Native Christians	27,954

The Musalmans belong to one of two religious sects—the Sunni and Shiah—the great majority being Sunnis. They are so called from accepting the Sunnat or traditional law, based on the sayings and practice of Muhammad, as of authority supplementary to the Kurán. They also revere equally the four successors of the prophet, alleging that he made no arrangements for hereditary succession and left the matter to the faithful. The Shiahs, on the other hand, attach supreme importance to the lineal descent of the Imám or head of the faithful. They therefore reject the claims of the three Khalifs that succeeded Muhammad and recognize Ali, the fourth Khalif, husband of Fatima, the prophet's only surviving child, as the true Imám, followed by their two sons Hasan and Husain. To the usual formula of belief they add "Ali is the Khalif of God."

The following is the distribution of the Musalmans in the several

Districts. There are also 892 Sharif, 244 Meman, and 861 returned only as Musalmans, besides 28 Arabs, 2 Kandahári̇s, and 2 Baluchis.

Class.	Bangalore.	Kolar.	Tumkur.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
Shekh ...	38,923	8,831	14,247	28,634	9,324	18,834	10,912	12,842
Saiyid ...	11,407	6,541	3,009	7,327	1,705	4,470	1,943	2,271
Mughal ...	1,999	1,264	1,032	1,413	481	2,615	376	237
Pathan ...	11,057	4,937	4,462	7,586	1,828	3,753	2,117	1,839
Hanifi ...	33	6	127	433	139	343	14	3
Daire ...	2,419	—	1	80	—	—	—	—
Labbe ...	1,098	199	92	1,973	67	119	161	8
Mápile ...	28	—	—	18	71	20	41	—
Pinjári ...	124	447	617	—	26	10	1	955
Pindári ...	180	—	808	1,027	—	33	—	—
Total ...	67,268	22,225	24,395	48,491	13,641	30,197	15,565	18,155

The four classes first above given are those of reputed pure descent. But although good families doubtless remain in various parts, the bulk are of mixed descent, due to intermarriage and conversions, voluntary or enforced. Shekh denotes properly a lineal descendant from Muhammad through his successors Abu Bakr and Umar; and Saiyid, a descendant through his son-in-law Ali and Husain. But these titles have probably been often assumed by converts promiscuously without reference to their signification. Pathans are of Afghan origin, descendants of Kutb-ud-Din, the founder of the Pathan dynasty, and his followers; while Mughals are descended from Tartar chiefs who followed Tamerlane into India. The Sharif, nearly all in Tumkur District, claim to be descended from nobility.

The Hanifi are a sect of Sunnis who follow the teachings and traditions of Abu Hanifa, one of the four great doctors of Islam. In practice one of their principal distinctions is in multiplying ceremonial ablutions. The Daire or Mahdavi are a sect peculiar to Mysore, principally settled at Channapatna in the Bangalore District, and at Bannur and Kirigával in the Mysore District. Their belief is that the Mahdi has already appeared in the person of one Saiyid Ahmed, who arose in Gujarát about 400 years ago claiming to be such. He obtained a number of followers and settled in Jivanpur in the Nizam's Dominions. Eventually, being worsted in a great religious controversy, they were driven out of the Haidarabad country and found an abode at Channapatna. They have a separate mosque of their own, in which their priest, it is said, concludes prayers with the words "the Imám

Mahdi has come and gone," the people responding in assent, and denouncing all who disbelieve it as infidels. They do not intermarry with the rest of the Musalmans. The Daire carry on an active trade in silk with the western coast, and are generally a well-to-do class.

The Arabs, Kandaháris and Balúchis are mostly in Bangalore, and come here as horse-dealers and traders in cloth.

The Labbe and Mápile[1] are by origin descendants of intermarriage between foreign traders (Arabs and Persians), driven to India by persecution in the eighth century, and women of the country, but the latter designation was taken by the children of those forcibly converted to Islam in Malábar in the persecutions of Tipu Sultan's time. The Labbe belong to the Coromandel coast, their principal seat being at Negapatam, while the Mápile belong to the Malabar coast. The former speak Tamil and the latter Malayálam. The Labbe are an enterprising class of traders, settled in nearly all the large towns. They are vendors of hardware, collectors of hides, and large traders in coffee produce, but take up any kind of lucrative business. They are also established in considerable strength as agriculturists at Gargesvari in the Mysore District.

The Meman, all in the Civil and Military Station of Bangalore, are immigrants from Cutch, come here for trade. By origin they appear to have been Rajputs. The Pinjári, as their name indicates, are cleaners of cotton. They do not intermarry with other Musalmans, who as a rule have no intercourse with them. The Pindári were to a great extent Afghans, Mahrattas and Jats in origin, disbanded from the service of the Mughal empire, but became known as a tribe of freebooters who ravaged India on a grand scale, with large armies, and gave rise to many wars. They were finally suppressed in Central India in 1817 in the time of the Marquess of Hastings. They are now settled down in the pursuit of peaceful occupations in agriculture and Government service of various kinds.

The Parsis (35) are from Bombay, and engaged in trade, except a few who are in Government service. One-half are in Mysore, and most of the remainder are in Bangalore. Of the Jews (25), the majority are in Hassan District, relatives of an official there. The Armenians (8), Chinese (7), Burmese (4), and Singalese (3), are all in Bangalore.

Of Europeans (6,231), the following is the distribution of the nationalities that are strongest in numbers :—

[1] Labbe is supposed to be derived from the Arabic *labbaik*, "here I am," being the response of slaves to the call of their masters. Mápile is apparently from Mápilla, Malayálam for "son-in-law."

Nation.	Bangalore.		Kolar.	Túmkúr.	Mysore.	Hassan.	Shimoga.	Kadur.	Chitaldroog.
	C. and M. Station.	District.							
English ...	3,933	287	216	27	215	128	31	191	17
Scotch ...	303	1	—	—	3	—	—	—	—
Irish ...	583	1	—	—	1	1	—	6	—
French ...	62	2	1	—	6	2	1	1	—
German ...	44	4	—	—	2	1	—	3	—
Italian ...	2	1	85	—	2	—	—	—	—

Of those from the United Kingdom, a considerable proportion in the Civil and Military Station of Bangalore belong to the British Army. Such as are not included in the military are engaged in civil employ of various kinds under Government, or Railway Companies, and in business or trade, while a number are missionaries, pensioners, and so forth. The Europeans in Kolar District are mostly connected with the gold mines, all the Italians there being miners. Those in Mysore who are not Government servants or employed under the Palace, are as in Bangalore. The Europeans in Kadur and Hassan Districts are principally coffee-planters. Besides the foregoing there are eleven Spaniards, eight Swiss, four Austrians, two Belgians, two Danes, and twenty-four others. Nearly all are in Bangalore, except six of the Swiss, who are in Kadur District.

The Eurasians number 3,931, of whom 2,649 are in the Civil and Military Station of Bangalore, and 401 in the Bangalore District. In the other Districts there are 276 in Kolar, 17 in Túmkúr, 208 in Mysore, 97 in Hassan, 16 in Shimoga, 229 in Kadur, and 38 in Chitaldroog. The remarks under Europeans in great measure apply to these also, but they are as a rule in more subordinate positions. Anglo-Indian and Eurasian colonies have been formed at Whitefield and Sausmond, about fifteen miles to the east of Bangalore, the residents of which are occupied in agriculture and dairy-farming.

The Native Christians are mostly Hindu by origin. Of the total number of 27,954, as many as 10,252 are in the Civil and Military Station, and 5,404 more in the District of Bangalore. Of the remaining Districts there are 2,418 in Kolar, 699 in Túmkúr, 2,509 in Mysore, 3,067 in Hassan, 1,603 in Shimoga, 1,773 in Kadur, and 229 in Chitaldroog. A large number are no doubt domestic servants to Europeans and Eurasians, but they are found in all grades of life, and a certain proportion are settled in agricultural villages of their own, established by various missionary agencies. This is especially the case in the eastern and southern Districts. The Christian settlement of Sathalli in the Hassan District dates from the time of the Abbé Dubois, the beginning of the century.

URBAN POPULATION

The (1891) population of 4,943,604 is distributed in 16,882 towns and villages. The two cities of Bangalore and Mysore account for 254,414. Omitting these, the following is a table of the remainder:—

District.	Towns and Villages containing a population of															
	Less than 200.		200 to 500		500 to 1,000.		1,000 to 2,000.		2,000 to 3,000.		3,000 to 5,000.		5 000 to 10,000.		10,000 to 15,000.	
	No.	Pop.	No.	Pop.	No.	Pop.	No.	Pop.	No.	Pop.	No.	Pop.	No.	Pop.	No.	Pop.
Bangalore ...	1,474	154,602	760	232,407	174	114,807	37	49,005	3	7,026	7	28,132	5	36,649	—	—
Kolar	1,958	195,483	722	212,312	126	86,672	29	39,969	3	7,928	2	7,024	3	18,871	2	22,771
Túmkúr ...	1,356	127,025	745	228,437	194	120,122	41	54,354	5	11,449	7	28,313	—	—	1	11,086
Mysore ...	1,080	123,051	1,006	328,636	464	315,269	154	212,687	21	51,058	11	42,095	4	22,419	1	12,551
Hassan ...	1,424	152,992	732	225,094	119	77,986	19	25,077	5	10,852	3	10,539	2	12,412	—	—
Shimoga ...	914	90,678	637	202,727	204	134,204	42	53,621	8	20,044	3	10,356	1	5,011	1	11,340
Kadur ...	675	55,702	760	118,953	115	79,775	34	42,223	4	10,048	2	8,490	2	14,872	—	—
Chitaldroog ...	504	53,531	451	146,758	167	110,686	46	60,736	7	18,437	2	9,390	2	14,446	—	—
Total ...	9,385	953,064	5,413	1,695,324	1,563	1,039,521	402	537,672	56	136,842	37	144,339	19	124,680	5	57,748

There are thus twenty-four towns with a population exceeding 5,000, namely,

Bangalore ...	180,366	Davangere	8,061	Nanjangud ...	6,421
Mysore	74,048	Chikmagalur ...	7,816	Harihar ...	6,385
Seringapatam ...	12,551	Anekal	7,419	Closepet ...	6,236
Kolar	12,148	Dod Ballapur ...	7,141	Hole Narsipur	5,758
Shimoga	11,340	Tarikere	7,056	Malavalli ...	5,639
Túmkúr	11,086	Devanhalli	6,693	Hunsur ...	5,141
Chik Ballapur	10,623	Hassan	6,654	Mulbagal ...	5,026
Channapatna ...	9,160	Sidlaghatta	6,572	Shikarpur ...	5,011

to which, in order to make up the totals given, must be added the large village of Agara in Mysore District, with 5,218 inhabitants; and the village of Wokkaleri in Kolar District, where the occurrence of a large festival at the time of the census raised the population to 7,273.

Besides these, there are seventy-four other smaller municipal towns, namely,

11 with population of over 4,000	26 with population of over 2,000
15 ,, ,, ,, 3,000	22 ,, ,, ,, 1,200

The town population may thus be reckoned as 626,558, forming 12·7 per cent. of the total.

To estimate the growth of towns during the present century the following statistics are available:—

Town	1852	1858	1871	1881	1891
Bangalore	134,628	175,630	142,513	155,857	180,366
Mysore	54,729	55,761	57,815	60,292	74,048
Seringapatam ...	12,744	14,928	10,594	11,734	12,551
Kolar	—	—	9,924	11,172	12,148
Shimoga	—	14,186	11,034	12,040	11,340
Túmkúr	—	9,339	11,170	9,909	11,088
Chik Ballapur ...	—	—	9,882	9,183	10,623

Except in Bangalore and Mysore these figures do not disclose any firmly established tendency to a decided increase in the urban population in the case of the principal towns.

Other particulars regarding the occupations, &c. of the people, are given under each District in Vol. II.

CHARACTER, DRESS, &c.

The people of Mysore are a hardy and well-formed race, fairer as a rule than those of the low country, and with regular features. "I have never," says Buchanan, "seen finer forms than even the labouring

women of that country frequently possess. Their necks and arms are in particular remarkably well-shaped."

In public character and disposition they may be described as the most conservative of the South Indian races. In practice, perhaps they exhibit a greater aptitude for the labours of the field and the tending of cattle than for other occupations. With the bucolic turn of mind there was no doubt much stolidity to be found among the agrestic hinds, and till lately predial slaves, but accompanied with blind devotion and simple fidelity to their masters. The better specimens of headmen, on the other hand, are dignified and self-reliant, commanding and gaining respect, proud of hospitality, sagacious observers, shrewd in conversation and with a vein of homely good sense and humour. The industrial classes and field-labourers are very hard-working, especially the women.

The dwellings of the people are generally built of mud, one-storeyed and low, with few, if any, openings outwards except the door, but possessed of courtyards within, surrounded with verandahs, and open to the sky. In the better houses these are well-paved and drained, while the wooden pillars are elaborately carved or painted. The huts of the outcaste and poorer classes are thatched, but the houses of the higher orders are covered with either terraced or tiled roofs, the latter, more especially in the west, where the rainfall is heavy.

The villages are pretty generally surrounded with a thick hedge of thorn, a protection in former days against the attacks of the Mahratta cavalry. For the same reason the entrance is often a flat-arched stone gateway, so constructed as to present an obstacle to a horseman. In the districts lying north-east from the Baba Budans, villages commonly have the remains of a round tower in the middle, a somewhat picturesque feature, erected in former days as a place of retreat for the women and children in case of attack. Most important villages and towns have a considerable fort of mud or stone, also the erection of former troublous times, when every gauḍa aimed at being a pálegar, and every pálegar at becoming independent. The fort is the quarter generally affected by the Brahmans, and contains the principal temple. The péṭe or market, which invariably adjoins the fort at a greater or less distance beyond the walls, is the residence of the other orders.

There is seldom any system in the arrangement of streets, which are often very roughly paved, and nearly always abounding in filth. The only motive for the formation of wide and regular streets in some of the towns is to provide for the temple-car being drawn round at the annual festival. All other lines of way are irregular beyond description. But improvements, both in laying out the streets and in their sanitation, are

now to be seen in many places which have been brought under municipal regulations.

White or coloured cotton stuffs of stout texture supply the principal dress of the people, with a woollen *kambli* as an outer covering for the night or a protection against cold and damp. Brahmans are bareheaded, the head being shaved all except the tuft at the crown (*juṭṭu*), and most of the Hindus observe the same practice. The moustache is the only hair permanently worn on the face. The *dhotra*, a thin sheet, covers the lower limbs, one end being gathered into folds in front and the other passed between the legs and tucked in at the waist behind. A similar garment is thrown over the shoulders. To protect the head, a bright magenta worsted cap is often donned, such as a brewer's drayman wears, but not in the same jaunty manner, for it is pulled well down over the ears and back of the neck. This and a scarlet, green, or blue blanket are favourite articles of attire for the early morning or on a journey. In attending offices Brahmans wear a turban (*rumál*) and a long coat (*angi*), either woollen or cotton. This also is more or less the costume of the merchant class. A fashion has sprung up among college students of wearing a sort of smoking-cap instead of a turban. The ryots are generally content with a turban and a kambli, with most frequently a short pair of drawers (*challaṇa*). When not at work they often wear a blouse or short smock-frock.

The dress of the women is generally very becoming and modest. A tight-fitting short bodice (*kupsa*) is universally worn, leaving the arms, neck, throat, and middle bare, the two ends being tied in a knot in front. It is generally of a gay colour, or variegated with borders and gussets of contrasting colours, which set off the figure to advantage. In the colder parts, to the west, a somewhat loose jacket, covering all the upper part of the body and the arms, is worn instead. The *shíre* or *sári*, a long sheet, the ordinary colours worn being indigo or a dull red with yellow borders, is wrapped round the lower part of the body, coming down to the ankle. One end is gathered into a large bunch of folds in front, while the other, passed across the bosom and over the head, hangs freely over the right shoulder. In the west it is tied there in a knot. The Brahmani women pass the lower end of the cloth between the legs and tuck it in at the waist behind, which leaves the limbs more free. Their heads too are not covered, the hair being gathered into one large plait, which hangs straight down the back, very effectively decorated at the crown and at different points with richly-chased circular golden cauls and bosses.

The Vaisya women are similarly dressed, but often with less good taste. As the fair golden-olive complexion natural to most Brahmani

girls is much admired, those of the sex who are not so fair smear themselves with saffron to produce a yellow tint, and not only on their cheeks but over their arms and legs. This practice, which seems very common with the trading class, is by no means attractive. Neither is the habit of blackening the teeth, adopted by married women. Many fair women are elaborately tattooed on the arms from the wrist to the elbow. The Súdra women generally gather the hair into a chignon or bunch behind, stuffed out with a fleece of wool, and run a large pin through, with an ornamental silver head to it, which is rather becoming. In the Malnad the women often do up the back hair in a very picturesque manner, with a plaited arrangement of the cream white *kétaki* blossom (*pandanus odoratissimus*), or even with orchid blossoms or pink cluster roses.

Ornaments are commonly worn in the ears and nose, and on the arms, with rings on the fingers and toes, and as many and costly necklets and chains round the neck as means will allow. Chains frequently connect the upper rim of the ear with the ornamental pin in the back hair, and have a pretty effect. The richer Brahmani and other girls wear silver anklets, often of a very ponderous make, which are by no means elegant. A silver zone clasped in front is a common article of attire among all but the poorer women, and gives a pleasing finish to the graceful costume.

It would be useless to attempt to go through a description of the varieties of Hindu dress in different parts. The only marked differences are in the Malnad, as described under Manjarabad, and the dress of the Lambáni women.

The Muhammadan dress for men differs chiefly in cut and colour, and in the wearing of long loose drawers. But for undress a piece of dark plaided stuff is worn like the *dhotra*. Muhammadans shave the head completely, but retain all the hair of the face. A skull-cap is worn, over which the turban is tied in full dress. The women wear a coloured petticoat and bodice, with a large white sheet enveloping the head and the whole person, and pulled also over the face.

The higher Hindus wear leather slippers, curled up at the toe and turned down at the heel, but the labouring classes wear heavy sandals, with wooden or leather soles and leather straps. The Muhammadans also wear the slipper, but smaller, and frequently a very substantial big shoe, covering the whole foot. Women are never shod, except occasionally on a journey, or in very stony places, when they sometimes wear sandals.

Members of the various Hindu orders are known by the sectarian marks painted on their foreheads. Married women commonly wear a wafer-spot or patch of vermilion, or sometimes of sandal-powder, on the

forehead. The Lingayits are known by the peculiar-shaped silver box, the shrine of a small black stone emblematic of the linga, which is worn suspended by a string from the neck and hanging on the chest. The working-classes of that order often tie the linga in a piece of handkerchief round the arm above the elbow. The commoner religious mendicants dress in a variety of grotesque and harlequin costumes. But garments dyed with red ochre or saffron are the commonest indication of a sacred calling.

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HISTORY

LEGENDARY PERIOD

A land covered with one mighty and all-embracing forest,—the great Daṇḍakáraṇya; nestling here and there on the bank of a sacred stream, the *ásrama* or hermitage of some *rishi* or holy sage, with his mind intent upon penance or absorbed in austerities of overwhelming potency; hidden in forest clearings or perched on isolated rocky eminences, the retreats and strongholds of lawless predatory chiefs or still more formidable *asuras* and *rákshasas*, whence they issued for raid and foray or bent on deeds of violence:—such is the picture of the south of India presented to our view in the earliest records of the Hindu race. In the continual conflict between *devas* or gods and Brahmans on the one side, and *asuras* or giants and *rákshasas* or demons on the other, is doubtless depicted a period when the Aryans in their southward progress were brought into collision with aboriginal races or the descendants of primeval immigrants.

The course of events seems to have been somewhat on this wise. A few solitary vedic rishis made their way as hermits to the south, in search of suitable retreats in the depths of the forest, where the acquisition of merit, by an uninterrupted round of austerities and rites, might gratify the spiritual pretensions which were contested among the haunts of men as at variance with the established system of society. But here too they found not unpeopled solitudes; and as intruders of a different race, provoked the hostility of previous settlers, which took the form of interference with the sacrifices and molestation of the rites—the proclaimed sources of supernatural power,—whose efficacy depended on exact and complete performance. The superior attainments, however, of the Aryan Brahmans enabled them in various ways to defeat the opposition of the tribes with whom they were thus brought into contact, and to introduce the elements of civilization among the ruder races of the south.

Impelled by internal strife or by ideas of adventure and conquest, warriors of the Kshatriya class gradually followed these Brahman pioneers across the Vindhyas, and came into collision with the rulers of indigenous tribes. The Brahmans, having already gained a footing

among these, would be led to assert sacerdotal claims with increased and uncompromising vehemence, whence violent struggles ensued, not alone between hostile races, but between rival sects and factions, marked by all the asperity and implacable rancour of such contests. The power of the Kshatriyas is represented as having been virtually extinguished, and only resuscitated with the aid of the Brahmans and the admission of their ascendency. But the rival system of Buddhism, which was of Kshatriya origin, became in course of time predominant ; and so continued for some centuries, until the gradual revival of Brahmanical influence ended in the banishment of the former from the land of its birth to the congenial soils where it still holds sway over the greater proportion of the human race.

But the records which have come down to us of these revolutions and mutations require to be used with discrimination. For the Brahmans, being last in the ascendant, have, apparently, by interpolations in old works, by the argument of more recent compositions and by the systematic destruction of Buddhist and Jain literature and remains of the intermediate period, persistently striven, not only to ascribe almost every public calamity to the neglect of their injunctions, but have even assigned a Brahmanical origin to the royal lines. Notwithstanding, therefore, evident anachronisms, and the prolongation of the lives of sages for several centuries, implied in their appearance at widely distant periods, the ancient literature, with steady uniformity, represents Brahmans and their blessings as the most potent source of honour and power, their imprecation as ensuring the most inevitable doom ; while, until the brilliant discoveries of Prinsep, the history of the Buddhist period was almost a blank. Modern research has done, and is still doing, an immense deal to dispel the obscurity which rests upon the early history, and to throw light on the real progress of events and development of principles which have resulted in the formation of the India of to-day.

Agastya.—Of the rishis who in the earliest times penetrated to the south, Agastya is one of the most conspicuous. The tradition that he caused the Vindhya mountains to bow down and yield him a passage, no less than the universal popular belief, seem to point him out as the forerunner of the last Aryan migration into the peninsula.[1] The ascendency he gained over the enemies of the Brahmans had, according to the Ramayana, rendered the southern regions safe and accessible at the time when Rama crossed the Vindhya range. The scene of the

[1] To him the Tamil race attribute their first knowledge of letters. After civilizing the Dravidians or Tamil people, he retired to a hill in the Western Ghats still named after him, and was subsequently identified with the star Canopus.

following grotesque and monstrous story of the exercise of his power is laid at Stambhodadhi (Kammasandra), on the banks of the Arkavati, near Nelamangala. There Agastya is related to have had an ásrama, and thither came the rákshasa brothers Vátápi and Ilvala, who, having obtained the boon that they should be invulnerable to gods and giants and might assume any form at will, had applied themselves to the work of destroying the rishis. Their *modus operandi* was as follows :—Ilvala, the elder, assuming the form of a Brahman, would enter the ásrama and invite the rishi to some ceremony requiring the sacrifice of a sheep. At this Vátápi, taking the form of the sheep, was sacrificed and eaten. The repast over, Ilvala would exclaim "Vátápi, come forth," when the latter, resuming his natural form, would burst out from the rishi, rending him asunder, and the two brothers eat him up. This plan they tried on Agastya, but he was forewarned. When, therefore, after the sacrificial meal, Ilvala as usual summoned Vátápi to come forth, Agastya replied that he was digested and gone to the world of Yama. Ilvala, rushing to fall upon him, was reduced to ashes by a glance.[1]

Of other rishis, tradition has it that Gautama performed penance on the island of Seringapatam in the Kávéri, Kanva[2] on the stream at Maḷur near Channapatna, Vibhándaka on the Tunga at Sringeri, Márkanda on the Bhadra at Kandeya, Dattátreya on the Baba Budans, besides many others in different places.

Asuras and Rákshasas.—"The (asuras and) rákshasas who are represented as disturbing the sacrifices and devouring the priests, signify," says Lassen, "merely the savage tribes which placed themselves in hostile opposition to the Brahmanical institutions. The only other actors who appear, in addition to these, are the monkeys, which ally themselves to Rama and render him assistance. This can only mean that when the Aryan Kshatriyas first made hostile incursions to the south, they were aided by another portion of the indigenous tribes."

Of the *asuras*, traditions are preserved that Guhásura had his capital at Harihara on the Tungabhadra, Hidimbásura was established at Chitaldroog, Bakásura near Rahman Ghar, Mahishásura, from whom Mysore derives its name, at Chamundi, and so on. The asuras, it is said, being defeated by the devas, built three castles in the three worlds, one of iron on the earth, one of silver in the air, and one of gold in the sky. These the devas smote, and conquered the three worlds; the

[1] For the original story see Muir, *Sans. Texts*, ii. 415. Weber considers it indicates the existence of cannibals in the Dekhan. Of Ilvala, perhaps we have a trace in the village of Ilavála, known to Europeans as Yelwal, near Mysore. Vátápipura is the same as Bádámi, near Dharwar.

[2] Kanva is to the Telugu race nearly what Agastya is to the Tamil.

muster of the forces for the assault on the triple city, or Tripura,[1] having taken place, according to tradition, at the hill of Kuruḍu male, properly Kúḍu male, near Mulbagal.

The *rákshasas* appear to have been a powerful race dominant in the south, whose capital was at Lanka in the island of Ceylon. The kingdom of the *vánara* or monkey race was in the north and west of the Mysore, their chief city being Kishkindha near the village of Hampe on the Tungabhadra. The ancient Jain Rámáyana, composed in Haḷa Kannaḍa, gives a genealogy of the kings of either race down to the time of Rama's expedition, which will be made use of farther on, so far as it relates to Mysore. In it we are also introduced to the *vidyádharas*, whose empire was apparently more to the north, and whose principal seat was at Rathanúpura-Chakraválapura.[2]

Haihayas.—In order, however, to obtain something like a connected narrative of events more or less historical of these remote times, we may begin with an account of the Haihayas. Wilson imagines them to be a foreign tribe, and inclines, with Tod, to the opinion that they may have been of Scythian origin and perhaps connected with a race of similar name who first gave monarchs to China.[3] They overran the Dekhan, driving out from Mahishmati, on the upper Narmada (Nerbudda), a king named Báhu, seventeenth in descent from Purukutsa of the solar line, the restorer of the dominion of the Nágas. He fled with his wives to the forest, where one of them gave birth to Sagara, who became a great conqueror and paramount ruler in India.[4] He nearly exterminated the Haihayas and associated races—the Sakas, Yavanas, Kámbojas, Páradas, and Pahlavas—but, at the intercession of his priest Vasishṭha, forbore from further slaughter, and contented himself with imposing on them certain modes of shaving the head and wearing the hair, to mark their degradation to the condition of outcastes.[5]

[1] Reference to a city named Tripura will be found in connection with the Kadamba kings, farther on. The legend perhaps means that the indigenous tribes in the west retired above the Ghats before Aryan invaders, and were finally subdued by their assailants penetrating to the table-land from the east, and taking the lofty hill forts.

[2] The Silaharas of Karaháṭa (Karhad), near Kolapur, are called Vidyadharas.—Dr. Buhler, *Vik. Dev. Char.* Int. 40.

[3] Wilson, *Vish. Pur.* Bk. IV, ch. xi, last note. Tod, *An. Raj.* I, 36. Haihaya was also the name of a great-grandson of Yadu, the progenitor of the Yádavas.

[4] Sagara is the king most commonly named at the end of inscriptions as an example of liberality in granting endowments of land.

[5] For the bearing of these regulations on certain practices at the present day, see Dr. Caldwell's article on the *kuḍumi* (Kan. *juṭṭu*), reprinted from the *Madras Mail* in *Ind. Ant.* IV, 166.

Eventually the Haihayas established their capital at Ratanpur (in the Central

Parasu Rama.—At a later period, Arjuna, the son of Kritavírya, and hence called Kártavíryárjuna (which distinguishes him from Arjuna, one of the Pándu princes), was ruling over the Haihayas. On him the muni Dattátreya had conferred a thousand arms and other powers, with which he oppressed both men and gods. He is even said to have seized and tied up Rávana. About the same time a sage named Jamadagni, nephew of Visvamitra, the uncompromising opponent of Vasishtha, having obtained in marriage Renuka, daughter of king Prasenajit, they had five sons, the last of whom was Ráma, called Parasu Ráma, or Ráma with the axe, to distinguish him from the hero of the Ramayana. He is represented as the sixth avatar of Vishnu: his axe, however, was given him by Siva.

Jamadagni was entrusted by Indra with the care of Surabhi, the celestial cow of plenty; and on one occasion being visited by Kártavirya, who was on a hunting expedition, regaled the Raja and his followers in so magnificent a manner as to excite his astonishment, until he learned the secret of the inestimable animal possessed by his host. Impelled by avarice, he demanded the cow;[1] and on refusal attempted, but in vain, to seize it by force, casting down the tall trees surrounding the hermitage.[2] On being informed of what had happened, Parasu Ráma was filled with indignation; and attacking Kártaviryárjuna, cut off his thousand arms and slew him. His sons in return killed Jamadagni, in the absence of Parasu Ráma. Whereupon Renuka became a Sati, by burning herself on her husband's funeral pyre. With her dying breath she imprecated curses on the head of her husband's murderer, and Parasu Ráma vowed, after performing his father's funeral obsequies, to destroy the whole Kshatriya race.

Having twenty-one times cleared the Earth of Kshatriyas, he gave her at the conclusion of an asvamedha, a rite whose performance was a sign of the consummation of victory, as a sacrificial fee to Kasyapa, the officiating priest; who, in order that the remaining Kshatriyas might be spared, immediately signalled him off with the sacrificial ladle, saying, "Go, great muni, to the shore of the southern ocean. Thou must not

Provinces), and continued in power until deposed by the Mahrattas in 1741 A.D. Inscriptions have been found proving the dominion of the Haihayas over the upper Narmada Valley as far back as the second century A.D.—*C. P. Gaz.* Int. l.

[1] There is little doubt that the so-called cow was a fertile tract of country, such as Sorab (literally Surabhi), where the scene of this transaction is laid, is well known to be.

[2] The story is differently related in the Mahabharata, but with too unnatural and improbable circumstances, and too manifest a design to inculcate certain Brahmanical notions. The sequel is the same.

dwell in my territory."[1] Parasu Ráma then applies to Ságara,[2] the ocean, for some land, and compels it to retire,[3] creating the seven Konkanas,[4] or the maritime regions of the western coast, whither he withdraws to the Mahendra mountain. The Earth, who finds it very inconvenient to do without the Kshatriyas as rulers and kings, appeals to Kasyapa, who discovers some scions of royal houses that have escaped the general massacre of their race, and instals them.

This prodigious legend, in which the mythical type of Brahmanism is clearly enough revealed as arrayed in opposition to the military caste, is by tradition connected with many parts of Mysore. Sorab taluq is the Surabhi which was Jamadagni's possession. The temple of Renuka, existing to this day at Chandragutti, is said to mark the spot where she burnt herself on the funeral pyre of her husband, and that of Koláhalamma at Kolar is said to have been erected in her honour from Kártaviryárjuna having there been slain. The colloquy with Ságara is said to have been near Tirthahalli. At Hiremugalur (Kadur District) is a singular memorial in the temple of Parasu, the axe of the hero, and its ancient name of Bhárgavapuri connects the town with him as being a descendant of Bhrigu.

Rama.—Our history has next to do with Rama,—called, by way of distinction, Ramachandra,—the hero of the Ramayana and the seventh avatár of Vishnu. On his way home after winning Sita by breaking the bow of Siva, he is, strangely enough, said to have been encountered by Parasu Rama, who required him to break a bow of Vishnu which he produced. This Rama did, and at the same time destroyed Parasu Rama's celestial abode. The story of Rama,—a Kshatriya, but obedient to the Brahmans; of the solar line, the son of Dasaratha, king of Ayodhya (Oudh)—and of the abduction, during their wanderings in the Daṇḍaka forest, of his wife the fair Sita, by Rávaṇa, the rákshasa king of Lanka in Ceylon, is too well known to need repetition here. To this day not an incident therein has abated in interest to the millions of India, and few parts of the land but claim to be the scene of one or other of its adventures. Without stopping to dwell on the

[1] The audacity of the conception is sublime. The explanation given is that Parasu Rama being guilty of homicide could not be allowed to reside in Brahman territory.

[2] Ságara, the ocean, was so named from Sagara (previously mentioned) through Bhagiratha. The tradition will be found in the Vishnu Purana, &c. The taluq adjoining Sorab is also called Ságar.

[3] According to some accounts he stood on the promontory of Dilli, and shot his arrows to the south, over the site of Kerala. It seems likely that we have proof of the local legend being at least as old as the Christian era, as the Mons Pyrrhus of Ptolemy is, probably, the mountain of Parasu or Parasu Rama.—Wilson. *Vish. Pur.* Bk. iv, ch. 7.

[4] These were Karáṭa, Viráṭa, Maháráṭa, Konkaṇa, Haiga, Tulava and Kerala.

romantic episode, which will be found in the history of the Kadur District, of Rishya Sringa, to whom indirectly the birth of the hero is ascribed, it is evident that Rama's route from Panchavaṭi or Nasik, at the source of the Godavari, to Ramesvara, on the south-eastern coast opposite Ceylon, would naturally lead him across the table-land of Mysore.[1]

All accounts agree in stating that the first news Rama received that Rávaṇa had carried off his wife to Ceylon, was conveyed to him while at the court of Sugriva, the king of Kishkindha; and that with the forces here obtained he accomplished his expedition and the recovery of Sita. He first met with Sugriva, then dispossessed of his kingdom, at the sources of the Pampa or Tungabhadra, and assisted him in recovering his throne. The former region therefore would be in the Western Ghats, in Kadur District; and the situation of Kishkindha is generally acknowledged to be on the Tungabhadra, north of the Mysore,[2] near the village of Hampe, where in modern times arose the cities of Anegundi and Vijayanagar. The Brahmanical version of the Ramayana, as contained in Valmiki's famous poem, describes the races of this region as *vánaras* and *kapis*, or monkeys. But the Jain Ramayana, previously referred to, calls Kishkindha the *vánara dhvaja* kingdom, or kingdom of the monkey flag. This simple device on the national standard, therefore, may have led to the forces being called the monkey army,[3] and thence easily sprung all the other embellishments of the story as popularly received.[4] We shall follow the Jain version in giving the previous history of the kings of Kishkindha.[5]

Kishkindha.—By the conquests of Sagara, here made a descendant of Puru,[6] a prince named Tóyada Váhana (the same as Megha Váhana, or Jimúta Váhana), who had thought to marry a princess whom Sagara

[1] The papers concerning Mysore (in the Mackenzie collection) seem to agree in stating that Rama went by way of the Mysore country to Lanka.—Taylor, *Cat. Rais. Or. MSS. III*, 693.

[2] Wilson, *Utt. Ram. Char.* Act I, Sc. 2; Monier Williams, *Ind. Ep. Po.* 76; Talboys Wheeler, *Hist. Ind.* II, 318.

[3] This is nothing but what we often do in speaking of the military array of the British lion, the Russian bear, &c.

[4] Kapi-dhvaja (monkey flag) was one of the names of Arjuna, the most popular of the Pandu brothers. The monkey ensign was also one of the insignia of the Kadamba kings of Banavasi and Hanagal, and is still a cherished emblem of the Balagai or right-hand castes (*see* above, p. 224).

[5] An attempt has been made in Valmiki's Ramayana to supply some of these particulars in the Uttara Káṇḍa or supplementary chapter, but the accounts are meagre and much altered.

[6] The progenitor of one branch of the lunar line, and, from the similarity of names, sometimes conjectured to be the Porus who was defeated by Alexander the Great.

appropriates, is driven to take refuge with Bhima rákshasa of Lanka; and the latter, being without heirs, leaves to him that kingdom, as well as Pátála Lanka. After many generations, Dhavala Kirtti arises in that line, whose wife's brother, Srikanṭha Kumára, being desirous of establishing a principality for himself, sets out for the *vánara dvipa*, or monkey island, where the accounts he receives of the Kishkindha hill induce him to select it as the site of his capital. He accordingly founds there the city of Kishkindha, and is the progenitor of the line of kings of the monkey flag.

The successors of Srikanṭha Kumára, in regular descent, were Vajrakanṭha, Indráyudha, Amara Prabhu (who marries a princess of Lanka), and Kapi Kétu. After several more kings, whose names are not mentioned, the line is continued by Mahódadhi, and his son Pratibindu. The latter has two sons, Kishkindha and Andhraka. A *svayamvara* being proclaimed for Mandara Máli, princess of Adityanagara on the Vijayártha parvata, these two princes attend, as well as Vijaya Simha, son of Asanivega the Vidyádhara chakravarti, and Sukesha, the young king of Lanka. The lady's choice falling on Kishkindha, Vijaya Simha is indignant and attacks him, but is killed by Andhraka. Asanivega, to revenge his son's death, marches against Kishkindha and Sukesha, and takes both their kingdoms. They retire to Pátála Lanka. After a time, Kishkindha founds a city on Madhu parvata, and has there two sons, Rikshaja and Súryaja. Sukesha, in Pátála Lanka, has three sons—Máli, Sumáli, and Málayavant,—who, on attaining to manhood, recover possession of Lanka. Meanwhile, in the Vidyádhara kingdom, Asanivega has been succeeded by Sahasrára, and he by Indra.[1] The Lanka princes, with the aid of Rikshaja and Súryaja, attack the latter, but are defeated and again lose their kingdoms, all retiring to Pátála Lanka as before. In the course of time, to Ratnásrava, son of Sumali, is born Rávaṇa, the predestined champion of the rákshasa race. He regains Lanka and Kishkindha, and restores the latter to Rikshaja and Súryaja. Vali and Sugriva, the sons of the last, succeed to the throne. Rávaṇa now demands their sister in marriage; but Vali, being opposed to it, abdicates, and thus leaves Sugriva alone in the government.

On one occasion, Sugriva, owing to some dispute with his wife Sutáre, stays away from his capital; and during his absence, a double

[1] The Silaháras of Karaháta (Karhád), near Kolapur, claim to be not only Vidyádharas (as above stated, p. 273), but also to be connected with the royal race of Ceylon. A Chálukya inscription of A.D. 1008 says, "The Silára family of the Simhala kings are descended from Jimúta-váhana, son of Jimúta-ketu, the lord of the Vidyádharas." (See *J. Bo. Br. R. A. S.* No. V, p. 221.)

of himself, who most closely resembles him, usurps his place and imposes upon all the ministers. The real Sugriva, being in a fix, resorts to his friend Hanumán, son of Pavanjaya, king of Hanuvara or Hanuruha dvípa. Then, hearing about Rama, he visits him at Pátála Lanka, and undertakes to discover Sita's place of confinement in return for Rama's assistance in regaining his throne. Kishkindha is accordingly attacked, the false or Máya Sugriva is killed, and Sugriva restored. News having been received from a neighbouring chief that he saw Rávaṇa bearing Sita to Lanka,[1] a council is now held, at which it is resolved to send to Hanuvara dvípa for Hanumán, as being of rákshasa descent. The latter arrives, and undertakes to go to Lanka as a spy and discover the truth of the report. He sets out by way of Mahendra parvata[2] and Dadhi-mukha parvata and brings back tokens from Sita. Forces are at once mustered for the expedition to Lanka for her recovery. The march of the army to the southern sea leads them to Velándha-pura, ruled over by Samudra; to Suveláchala, ruled over by Suvela; and lastly to Hamsa dvípa, whose king was Dvípa-radana.

The identity of the places mentioned in the foregoing account it is perhaps difficult to establish. But it seems not unlikely that Pátála Lanka, evidently, from the name, a city below the Ghats, and belonging to the rákshasa kingdom of Ceylon, was some place in Canara; for the dominions of Rávaṇa are said to have extended to Trichinopoly on the east, and to Gokarna on the west of the peninsula. Honuvara or Honuruha dvípa again is no doubt one of the islands in the large lake of Honavar or Honore[3] in the Gersoppa district, near the mouth of the Sharavati, which forms the Gersoppa Falls. The principal island in the outer bay was fortified by Sivappa Nayak of Ikkéri, and is now called Basava Rája durga. The north-west of Mysore seems thus pretty clearly connected with an important part of Rama's expedition. Local traditions, less credible in character, will be found noticed under the several places where they are current.

Pandavas.—We will therefore proceed to the history of the Páṇḍus,

[1] An inscription on the Jaṭinga-Rames'vara hill in Molakalmuru taluq, dated S'aka 883, states that the linga there was set up when Rávaṇa had seized Sita and when Jaṭáyu fought and fell there in her behalf.

[2] Mahendra is a name applied to some parts of the Eastern Ghats, and also to a mountain near Cape Comorin.

[3] The lake is of great extent and contains many islands, some of which are cultivated. It reaches almost to the Ghats, and in the dry season is quite salt; but it receives many more streams, which during the rainy monsoon become torrents and render the whole fresh. By the natives it is commonly called a river, but lake is a more proper term.—Buchanan, *Jour.* II, 279.

and briefly notice some of the more important events related in the Maha Bharata which tradition connects with Mysore. Arjuna, the third and most attractive of the five brothers, who by his skill in archery won Draupadi, the princess of Panchála, at her *svayamvara*, after a time went into exile for twelve years, in order to fulfil a vow. During his wanderings at this period, it is related that he came to the Mahendra mountains, and had an interview with Parasu Rama, who gave him many powerful weapons. Journeying thence he came to Manipura, where the king's daughter, Chitrángada, fell in love with him, and he married her and lived there three years, and had by her a son, Babhru-váhana. The locality of this incident is assigned to the neighbourhood of Chamrajnagar in the Mysore District, where the site of Manipura, to which we shall have again to refer, is still pointed out.[1]

When Yudhishṭhira resolved to perform the royal sacrifice called the Rájasúya, by which he proclaimed himself paramount sovereign, it was first necessary to subdue the kings who would not acknowledge him. Accordingly four expeditions were despatched, one towards each of the cardinal points. The one to the south was commanded by Sahadeva. After various conquests he crosses the Tungabhadra and encamps on the Kishkindha hill, where Sushena and Vrishasena, the chiefs of the monkey race, make friendship with him. Thence he goes to the Kávéri, and passing over to Mahishmati (Mahishur, Mysore), attacks Nila its king, whom he conquers and plunders of great wealth.[2] After this he goes to the Sahyádri or Western Ghats,

[1] Manipur in Eastern Bengal, it appears, also lays claim to the story, but evidently on scanty grounds.—Wheeler, *Hist. Ind.* I, 149, 425, notes.

[2] The Maha Bharata in this place (Sabha Parva) makes some singular statements regarding the women of Mahishmati. The king Nila Rája, it is said, had a most lovely daughter, of whom the god Agni (Fire) became enamoured. He contrived to pay her many secret visits in the disguise of a Brahman. One day he was discovered and seized by the guards, who brought him before the king. When about to be condemned to punishment, he blazed forth and revealed himself as the god Agni. The Council hastened to appease him, and he granted the boon that the women of Mahishmati should thenceforth be free from the bonds of marriage in order that no adultery might exist in the land, and that he would befriend the king in time of danger. This description of "free love" would apply to the Nairs and Namburi Brahmans of Malabar, but seems misplaced in reference to Mysore. It may, however, indicate that a chief of Malabar origin had at that time established himself in power in the south-west; and possibly refer to some stratagem attempted against him by Jamad-agni, which ended in an alliance. Sahadeva was forced to conciliate Agni before he could take Mahishmati.

It may here be stated that, according to traditions of the Haihayas in the Central Provinces, Nila Dhvaja, a descendant of Sudhyumna, got the throne of Mahishmati (Mandla); Hamsa Dhvaja, another son, became monarch of Chandrapur (supposed to be Chanda); and a third received the kingdom of Ratanpur. The two former kingdoms, after the lapse of some generations, were overthrown by the Gonds, and

subdues many hill chiefs, and, descending to the coast, overruns Konkana, Gaula and Kerala.

The fate of the great gambling match which followed the Rájasúya, and the exile of the Pándavas for thirteen years, during the last of which they were to live *incognito*, need not be related here, as they are generally well known. But an inscription at Belagami in Shikarpur taluq expressly says that the Pándavas came there after the performance of the Rájasúya. In the course of their farther wanderings, the brothers are related to have lived in the Kamyaka forest, and this is claimed to be the wild tract surrounding Kavale-durga in the Shimoga District. The erection of the massive fortifications on that hill is ascribed to the Pandus, as well as the Bhimankaṭṭe thrown across the Tunga above Tirthahalli. The thirteenth year of exile was spent at the court of the king of Viráṭa, in various disguises,—Bhima as a cook, Arjuna as a eunuch, Draupadi as a waiting-maid, &c. The varied incidents of this year are fully given in the published abstracts of the poem. It is only necessary here to state that Viráṭa-nagara is more than once mentioned in the Chálukya inscriptions, and is by tradition identified with Hánagal, a few miles north of the Sorab frontier.[1]

We pass on to the great *asvamedha*, or horse sacrifice, undertaken by Yudhishṭhira, which forms the subject of one of the most admired Kannada poems, the Jaimini Bharata. Among the conditions of this regal ceremony, it was required that the horse appointed for sacrifice should be loosed and allowed to wander free for the period of one year. Wheresoever it went it was followed by an army, and if the king into whose territories it chanced to wander seized and refused to let it go, war was at once declared and his submission enforced. In accordance with these rules, Arjuna was appointed to command the escort which guarded the horse. Among the places to which it strayed, three are by tradition connected with Mysore.

the Ratanpur kingdom alone survived till the advent of the Mahrattas.—*C. P. Gaz.* 159.

Sudhanva, a son of Hamsa Dhvaja, is also said in the traditions of Mysore to have been the founder of Champaka-nagara, now represented by the village of Sampige, near Kaḍaba, in Gubbi taluq.

The only actual record hitherto found of a Nila Rája in the south is in the Samudra Gupta inscription at Allahabad, in which he is assigned to an unknown country called Avamukta (signifying freed or liberated, a curious coincidence with the story above given), and is mentioned between Vishnugópa of Kánchi and Hastivarman of Vengi. His period, according to this, would be the fourth century. (See Fleet's *Early Gupta Kings*, p. 13.)

[1] Sir Walter Elliot says, "The remains of enormous fortifications, enclosing a great extent, are still visible. I have got a plan distinctly showing the circuit of seven walls and ditches on the side not covered by the river."—*Mad. J.* 18, 216. Also see *Int. Ant.* V, 177.

The first of these is Manipur, near Chamrajnagar, previously mentioned.[1] Babhruváhana, the son here born to Arjuna, had now grown up and succeeded to the throne. His kingdom was also in a state of the highest prosperity. It was pre-eminently "a land of beauty, valour, virtue, truth:" its wealth was fabulous,[2] and its happiness that of paradise: it was filled with people, and not a single measure of land was unoccupied or waste. When the horse came near this enchanting spot the Raja was informed of it; and, on his return from the chase in the evening, he commanded it to be brought before him. The scene is thus described:—

"Now the whole ground where the Raja held his council was covered with gold; and at the entrance to the council chamber were a hundred pillars of gold, each forty or fifty cubits high; and the top of each pillar was made of fine gold and inlaid with jewels; and on the summits of the pillars and on the walls were many thousand artificial birds, made so exact that all who saw them thought them to be alive; and there were precious stones that shone like lamps, so that there was no need of any other light in the assembly; and there also were placed the figures of fishes inlaid with rubies and cornelians, which appeared to be alive and in motion. All round the council hall were sticks of sandal, wound round with fine cloth which had been steeped in sweet-scented oils; and these were burnt to give light to the place instead of lamps, so that the whole company were perfumed with the odour. And before each one of the principal persons in the assembly was placed a vessel, ornamented with jewels, containing various perfumes; and on every side and corner of the hall were beautiful damsels, who sprinkled rose-water and other odoriferous liquors. And when the horse was brought

[1] There appear to be several reasons for accepting this as the locality in preference to Manipur in Eastern Bengal. In the version given by Wheeler, Vol. I, it is stated (396) that the horse when loosed went towards the south, and that its return was in a northerly direction (414); these directions would not lead it to and from E. Bengal, but to and from S. Mysore they would. It is also said (406) that sticks of sandalwood were burnt in the council hall of Manipur, and also (408) that elephants were very excellent in that country. Now Mysore is the well-known home of the sandal-tree, and the region I have assigned as the site of Manipur is peculiarly the resort of elephants: within ten miles of that very site were made the remarkably successful captures of elephants described on p. 179. The sequence of places visited by the horse after Manipur is also, as shown in the text, consistent with the identification here proposed. From the notes (149, 425) it appears that the application of the story to Manipur in Bengal is of very recent date.

[2] Of Solomon in all his glory it is stated that "he made silver and gold at Jerusalem as plenteous as stones." So here "many thousands of chariots, elephants and horses were employed in bringing the revenue, in gold and silver, to a thousand treasuries; and the officers sat day and night to receive it; but so great was the treasure that the people who brought it had to wait ten or twelve years before their turn came to account for the money, obtain their acquittal and return home!" One Raja confessed that he sent a thousand cart-loads of gold and silver every year merely for leave to remain quietly in his own kingdom.

into the assembly, all present were astonished at its beauty and excellence ; and they saw round its neck a necklace of excellent jewels, and a golden plate hanging upon its forehead. Then Raja Babhruváhana bade his minister read the writing on the plate ; and the minister rose up and read aloud, that Raja Yudhishṭhira had let loose the horse and appointed Arjuna to be its guardian."

It was resolved that Babhruváhana, being Arjuna's son, should go forth to meet him in a splendid procession and restore the horse ; but Arjuna, under some evil influence, refused to acknowledge the Raja as his son : he even kicked him, and taunted him with inventing a story because he was afraid to fight. Babhruváhana was then forced to change his demeanour, which he did with great dignity. A desperate battle ensued, in which Arjuna was killed, and all his chieftains were either slain or taken prisoners. Congratulations were showered upon the victor, but his mother, Chitrángada, swooned and declared her intention of burning herself on Arjuna's funeral pile. In this dilemma, Ulúpi, a daughter of Vásuki, the Nága or serpent raja, whom Arjuna had formerly married, and who had afterwards entered the service of Chitrángada, resolved to get from her father a jewel which was in the possession of the serpents, and which would restore Arjuna to life. She accordingly sent a kinsman to her father with the request. His council, however, being afraid of losing the jewel, refused to give it up. On learning this, Babhruváhana made war upon the serpents and compelled them to give it up. Arjuna was by its means restored to life and reconciled to his son.

The horse then entered the territory of Ratnapura, a city of which name, it will be seen, was situated near Lakvalli in Kadur District. The animal was here seized, but rescued by Arjuna. It next wandered into Kuntala, the country of Chandrahása, whose capital we shall find was at Kubattur in Shimoga District. Here also the king was compelled to release it.

The story of Chandrahása is a pleasing and favourite romance. He was the son of a king of Kerala, and was born with six toes. While an infant, his father was killed in battle, and his mother perished on her husband's funeral pile. His nurse then fled with him to Kuntala, and when she died, he was left destitute and forced to subsist by begging. While doing so one day at the house of the minister, who is appropriately named Dushṭa buddhi, or evil counsel, some astrologers noted that the boy had signs of greatness upon him, indicating that he would one day become ruler of the country. The minister, hearing of it, took secret measures to have him murdered in a forest ; but the assassins relented, and contented themselves with cutting off his sixth toe, which they produced as the evidence of having carried out

their instructions. Meanwhile, Kulinda, an officer of the court, hunting in that direction, heard the boy's cry; and, pleased with his appearance, having no son of his own, took him home to Chandanávati and adopted him.

He grew up to be very useful and, by defeating some rebellious chieftains, obtained great praise and wealth for his adopted father, which excited the jealousy of the minister. The latter, resolved to see for himself, paid a visit to Kulinda, when, to his astonishment, he learnt that all this prosperity was due to an adopted son, Chandrahása, who had been picked up in the forest years ago bleeding from the loss of a sixth toe. The truth at once broke upon him that it was the boy he had thought to murder. Resolved more than ever to get rid of him, he dissimulates and proposes to send him on an errand to court, which was gladly enough undertaken. A letter was accordingly sent by him to Madana, the minister's son, who was holding office during his father's absence, directing that poison (*visha*) should be at once given to the bearer as he valued his own advancement. For the minister had secretly resolved, as there was no male heir to the throne, to marry Madana to the king's daughter and thus secure the kingdom to his own family. Chandrahása, bearing the letter, arrived near the city, where he saw a charming garden. Being weary, he tied his horse to a tree and lay down to rest, when he fell asleep.

Now it so happened that this garden belonged to the minister, and that morning his daughter Vishaya (to whom, before leaving, he had jestingly promised to send a husband), had come there with the daughter of the Raja and all their maids and companions to take their pleasure; and they all sported about in the garden and did not fail to jest each other about being married. Presently Vishaya wandered away from the others and came to the tank, where she saw the handsome young Chandrahása lying asleep on the bank, and at once fell in love with him. She now noticed a letter half falling from his bosom, and, to her great surprise, saw it was in the handwriting of her father, and addressed to her brother. Remembering what had been said about sending her a husband, she gently drew out the letter and, opening it, read it. One slight alteration she saw would accomplish her wishes; she accordingly changed the word *vishava*, poison, into *vishaya*, her own name, resealed it with a copy of her father's seal which she had with her, and replaced it in the young man's bosom.

When Madana received the letter he was greatly surprised, but as the message was urgent, at once proceeded with arrangements for marrying his beautiful sister to the handsome stranger. The ceremony had just been concluded with all manner of pomp and rejoicing, when the minister returned. Seeing what had happened, he was struck dumb with amazement. The production of the letter further convinced him that through fate the mistake must have been his own. Suffice it to say that he makes another attempt to get rid of Chandrahása, but it so chances that his own son Madana is killed instead; and Chandrahása, taking the fancy of the king, is adopted as heir to the throne and married to the princess. Whereon the minister, driven to desperation, kills himself.

Janamejaya.—Before quitting the legendary period, there is yet one tradition demanding notice. During the first twelve years' exile of Arjuna, before visiting Manipur, he had married Subhadra, the sister of Krishna. By her he had a son named Abhimanyu. When, at the conclusion of the thirteenth year of the second period of exile, the Pándavas threw off their incognito at the court of Viráṭa, the raja offered his daughter Uttara to Arjuna. But the latter declining her for himself, on the ground that he had acted as her music and dancing-master, and she had trusted him as a father, accepted her for his son Abhimanyu, from which union sprung Parikshit,[1] whose son was Janaméjaya. This is the monarch to whom the Maha Bharata is recited. There is a professed grant by him at Bhimankaṭṭe maṭha,[2] now Tirthahalli, dated in the year 89 of the Yudhishṭhira era, which would be 3012 B.C., but, if for no other reason, it is quite discredited by the signature being in comparatively modern Kannaḍa characters. The grant itself is in Sanskrit, and in Nagari characters. Janaméjaya is represented in it as ruling in Kishkindha, and making a gift, in the presence of the god Harihara, of the place on the Tungabhadra in which his great-grandfather Yudhishṭhira had rested.

Parikshit, according to a curse, died from the bite of a serpent;[3] in revenge for which it was that Janaméjaya performed his celebrated *sarpa yága* or serpent sacrifice. This ceremony, according to tradition, took place at Hiremugalur in the Kadur District, and three agraháras in the Shimoga District,—Gauj, Kuppagadde and Begur—possess inscriptions on copper plates, also written in Sanskrit, and in Nágari characters, professing to be grants made by Janaméjaya to the officiating Brahmans on the occasion of the *sarpa yága*. The genuineness of the first of these, which is the one best known,[4] has been a subject of much controversy: but all three are almost identical in the historical portion. They describe the donor as the son of the emperor Parikshit; of the *Soma vams'a* and *Páṇḍava kula*; having a golden boar on his flag, and ruling in Hastinapura. The grants are made during an expedition to the south, in the presence of the god Harihara, at the confluence of the Tungabhadra and Haridra. The inscriptions are no doubt of some antiquity, but to accept them as dating from the commonly-received

[1] He was a posthumous son and still-born, but Krishna pronounced some words over the body which instilled life into it.

[2] See *Mys. Ins.* 251.

[3] The Bhágavata Puráṇa was recited to him between the bite and his death! The supposed meaning of the legend is, that Parikshit met his death at the hands of a Nága tribe, and that his son exterminated the Nágas in revenge.

[4] See Colebrooke, *As. Res.* IX, 446.

period for the commencement of the Kali yuga,[1] when Janaméjaya is said to have reigned, would be absurd.

A well-known native astronomer[2] worked out the calculations for me, and maintained that they accord with no other year but 36 of the Kali yuga, or B.C. 3066. He also stated that there is an interval of twelve days between the first date and the other two; and that the former marks the beginning, and the latter the conclusion, of the sacrifice. On the other hand, the eclipse mentioned in the Gauj agrahára inscription, is stated,[3] on the authority of Sir G. Airy, to have happened in A.D. 1521, but this seems based on a mistake. I have elsewhere[4] published what professes to be a Chalukya inscription, dated Saka 366 (A.D. 444), which is in the same characters, and corresponds closely in many of the particulars, and in the peculiar terms of these grants. I have also made a minute comparison between them all, and given reasons for assigning them to about A.D. 1194. More recent discoveries lead to a suspicion that these and some other unaccountable inscriptions were in some way connected with Henjeru, a Noḷamba city, now called Hemavati, situated on the Sira border, and perhaps with Harihara on the Tungabhadra.

Regarding the chronology of the events which have been mentioned in the foregoing account of the legendary period, it can only be stated generally, that the destruction of the Kshatriyas by Parasu Rama is said to have taken place between the Treta and Dvápara ages; and that an era of Parasu Rama used in Malabar dates from 1176 B.C. Rama's expedition against Lanka, assigned to the close of the Treta age, is supposed to have taken place about the thirteenth century B.C.[5] and the war of the Maha Bharata about fourteen centuries B.C.[6] The earliest version of the two epics must have been composed before 500 B.C.[7]

[1] It is reckoned to have begun on the 18th of February, 3102 B.C., at midnight on the meridian of Ujjayini.

[2] The late Siddhánti Subrahmanya S'ástri.

[3] *J. Bo. Br. R. A. S.* X, 81.

[4] *Ind. Ant. VIII*, 89; *Mys. Ins.* lxx.

[5] Griffith, *Ram. Int.* xv.

[6] Wilson, *Vish. Pur. pref.* ci. A Chalukya inscription of the sixth century makes the era of the war of the Maha Bharata 3146 B.C.—*Ind. Ant.* V, 68; *J. Bo. Br. R. A. S.* IX.

[7] The Kali Yuga or fourth age of the world was supposed to commence at the birth of Krishṇa. Hence the events of the Mahá Bhárata must have taken place during the third or Dvápara age, and those of the Rámáyaṇa at the end of the second or Treta age.—Monier Williams, *Ind. Wis.* 333, 315 ff.

HISTORICAL PERIOD

Mauryas.—The authentic history of India begins with the invasion of the Greeks under Alexander the Great in 327 B.C., and when the Sandrakottos[1] of the Greek writers was identified with Chandra Gupta, a secure basis was established on which to found the chronology of events in India itself. From the little we know of Chandra Gupta, he first appears as an adventurer in the camp of Alexander, from which, owing to some quarrel, he had to flee. Collecting bands of followers, he contrived to overthrow the dynasty of the Nandas[2] in Magadha, or Behar, and made himself supreme sovereign throughout northern India, with his capital at Pátaliputra (Palimbothra in the Greek version), the modern Patna, on the Ganges. On the other hand, after the death of Alexander in 323, Baktria and (the Greek provinces in) India had fallen to the share of Seleukos Nikator, the founder of the Syrian monarchy. But it was not till he had recovered Babylon in 312 that the latter was at leisure to turn his attention to India. He then found himself unable to cope with Chanda Gupta, and therefore entered into alliance with him, ceding the Greek settlements in the Punjab and the Kabul valley in return for a present of 500 elephants, and giving him his daughter in marriage. He also appointed to the court at Pataliputra an ambassador named Megasthenes, from whose accounts the Greeks obtained much of their information about India. The reign of Chandra Gupta lasted for twenty-four years, from about 316 to 292 B.C., and the line of kings originating with him are known as the Mauryas.

The earliest event in the annals of Mysore that may be regarded as historical is connected with Chandra Gupta. According to the accounts of the Jains, Bhadrabáhu, the last of the *s'rutakevalis*, or hearers of the first masters, foretold the occurrence in Ujjayini of a dreadful famine which would last for twelve years. On its approach the main body of the Jains there forsook the northern regions and migrated to the south under his guidance. When they had journeyed as far as S'ravaṇa Belgoḷa, Bhadrabáhu, feeling that his end was drawing nigh, sent on the rest of the pilgrims, undei the leadership of Vis'ákha, to the Chóla and Pándya countries, and remained behind at the smaller hill (called Kaṭavapra in Sanskrit and Kalbappira or Kalbappu in

[1] Athenæus writes the name Sandrakoptus.—Wilson, *Theatre of the Hindus*, II, 132.

[2] In the play called *Mudrá-rákshasa* he is represented as having effected this with the aid of Chánakya (the Indian Machiavelli), who is also called Vishnu Gupta and Kauṭilya.

Kannada), to die, attended by only a single disciple. That disciple, it is alleged, was no other than the Maurya emperor Chandra Gupta.

In accordance with the obligations of the Jaina faith he had abdicated towards the close of life, and renounced the world in order to prepare for death by acts of penance performed under the direction of a spiritual guide. For this purpose he had attached himself to Bhadrabáhu, the most distinguished professor of the faith at that time living, and had accompanied him to the south. He continued to minister to the wants of this his guru to the last, and was the only witness of his death. According to tradition, Chandra Gupta survived for twelve years, which he spent in ascetic rites at the same place and died there, after welcoming the emigrants on their return journey from the south when the great famine was over which had driven them from their homes.

In testimony of these events not only is Bhadrabáhu's cave, in which he expired, pointed out on the hill at S'ravana Beḷgoḷa, but the hill itself is called Chandra-giri after Chandra Gupta; while on its summit, surrounded with temples, is the Chandra Gupta basti, the oldest there, having its façade minutely sculptured with ninety scenes from the lives of Bhadrabáhu and Chandra Gupta, though these may be more modern. Additional evidence is contained in the ancient rock inscriptions on the hill. The oldest of them relates the migration of the Jains and the other events above mentioned, while a second associates Bhadrabáhu with Chandra Gupta as the two great munis who gave the hill its distinction.[1] Similar testimony is borne by two inscriptions of about 900 A.D. found near Seringapatam.[2] Furthermore, stone inscriptions at S'ravana Beḷgoḷa dated in the twelfth and fifteenth centuries confirm the same traditions.[1] That Chandra Gupta was a Jain by creed may be inferred from the statements of Megasthenes, who, writing of the Sarmanes (or S'ravanas) distinguishing them both from the Brachmanes (or Brahmans) and from the followers of Boutta (or the Buddhists), says:—"They communicate with the kings, who consult them by messengers regarding the causes of things, and who through them worship and supplicate the deity."[3] That Bhadrabáhu was contemporary with Chandra Gupta is not denied.

According to the Greek accounts Chandra Gupta was succeeded by Amitrachades (probably Amitragháta, one of the king's titles), and Deimachos was the ambassador appointed to his court. But the Vishnu Puráṇa gives the following list of the Maurya kings:—

[1] See my *Inscriptions at Sravana Belgola*, Nos. 1, 17, 108, 54, 40.

[2] See my *Epigraphia Carnatica*, Vol. I, Sr. 147, 148.

[3] See McCrindle's *Indika of Megasthenes*, *Ind. Ant.* VI, 244; also Thomas, *The Early Faith of Asoka*, 23; Colebrooke, *Essays*, II, 203; Lassen, *Indische Alterthumskunde*, II, 700, 710.

Chandra Gupta.	Sangata.
Bindusára.	S'ális'úka.
As'oka-vardhana.	Somas'arman.
Suyas'as.	S'as'adharman.
Das'aratha.	Brihadratha.

Bindusára reigned for twenty-eight years, say 292 to 264 B.C., but in Mysore the next record we have carries us to the reign of As'oka, the grandson of Chandra Gupta. The discovery by me (in 1892) of three of his inscriptions in the Molkalmuru taluq, dating perhaps from 258 B.C., has put it beyond doubt that the Mysore country, or at any rate the northern part of it, was included in his dominions. All that was previously known of his connection with Mysore was contained in the statement in the Mahawanso that after the third convocation (244 B.C.) he despatched missionaries to foreign parts to establish the religion of Buddha; among whom "he deputed the thera Majjhantika to Kasmíra-Gandhára, and the thera Mahadeva to Mahisa-mandala (Mysore). He deputed the thera Rakkhita to Vanavási" (Banavasi on the Sorab frontier), &c. These places would seem therefore to have been just beyond the limits of his territories. An inscription of the twelfth century[1] describes Kuntala as the province governed by the Mauryas. This, roughly speaking, would be the country between the rivers Bhima and Vedavati, bounded on the west by the Ghats, including Shimoga, Chitaldroog, Bellary, Dharwar, Bijapur, and adjacent parts to the north in Bombay and the Nizam's Dominions.

The remarkable Edicts of As'oka, engraved on rocks and pillars, are, as is well known, the earliest specimens of writing that have been found in India. With the exception of those at Mansahra and Shahbazgarhi in the Yusufzai country, in the extreme north-west of the Punjab, which are in the Baktrian-Pali characters,[2] written from right to left; all the others are in the Indo-Pali characters,[3] written from left to right. But a singular circumstance about the Edicts found in Mysore is that although, as was to be expected, they are in the Indo-Pali characters, the scribe who wrote them has introduced the Baktrian-Pali at the end in describing his profession.[4] This character appears in no other inscriptions throughout India, except those in Yusufzai first mentioned. The inference is that the scribe may have been an official transferred from the extreme north to the extreme south of the empire, which implies a freer inter-communication than has been generally supposed to exist at that period.

As'oka was governor of Ujjain, under his father, before he came to the

[1] At Bandanikke, Shikarpur taluq.

[2] Also called Arian-Pali and Kharoshti.

[3] Properly the Brahmi lipi.

[4] As discovered by Dr Bühler.

throne. He reigned for forty-one years, about 264 to 223 B.C., or thirty-seven if counted from his coronation-anointing. During those previous four years he was engaged in struggles with his brothers. That he was at first a Jain has been deduced[1] from his Edicts, and also from the statement by Akbar's minister, Abul Fazl, in the *Ain-i-Akbari*, that As'oka introduced Jainism into Kashmir, which is confirmed by the *Rája-tarangini* or Brahmanical history of Kashmir, recording that As'oka "brought in the Jina s'ásana." Others, however, consider that he followed the Brahman creed. At any rate, he eventually embraced Buddhism, and made it the State religion, doing for that faith what the emperor Constantine at a later period did for Christianity. In the 13th Rock Edict he informs us that his conversion was due to the remorse he felt on account of the slaughter and devastation which attended his conquest of Kalinga, in the ninth year after his coronation. Henceforward he resolved to maintain peace and devote himself to religion. He thus gradually came to appoint officials (*mahámátras* and others) to watch over morality, and by teaching and persuasion alone to extend the knowledge of *dhamma* or moral duties. The slaughter of animals was to a great extent stopped; he had wells dug and avenues of trees planted along the roads; made arrangements for dispensing medical aid in all parts of the empire; and taught that the attainment of future happiness was open to all classes, and dependent, not on the ministration of priests, but on personal right conduct and humanity.

The Edicts in Mysore[2] are issued in the name of Devánam Piye (the beloved of the gods), a royal title of the Maurya kings, and are addressed by the Prince (ayaputa) and mahámátras in Tachchannugiri and S'ivannugiri[3] to the mahámátras in Isila, places which have not been identified. The contents run as follows:—

The Beloved of the gods (thus) commands:—For more than two years and a half, when I was an *upásaka* (or lay-disciple), I did not take much trouble. For one year[4] (I took) immense trouble; the year that I went to the *sangha* (or assembly of clerics) I put forth great exertion. And in this time the men who were (considered) true in Jambudvipa (were shown to be) false, together with the gods.[5] This, indeed, is the result of exertion. But this can not be attained only by the great. For in any case, even to the lowly

[1] By Ed. Thomas, *Jainism, or the Early Faith of Asoka*. His grandson Samprati was certainly a Jain.

[2] Translations have been published by Dr. Bühler in *Epigraphia Indica*, III, 140; and by M. Senart, in French, in the *Journal Asiatique* for 1892.

[3] The reading of these names is not quite clear: Dr. Bühler proposes Suvaṇṇagiri for both.

[4] Or, according to another version, "for one period of six years."

[5] This difficult passage also reads in other versions as "The men who were really equal to gods in Jambudvipa (were proved to be) falsely (so regarded)."

by effort high heaven (*svarga*) is possible, and may be attained. To this end has this exhortation been delivered :—Both humble and great should so exert themselves : and the neighbouring countries should know this ; and this exertion should be of long continuance. Then will this matter increase ; it will increase greatly ; it will increase to at least as much again. And this exhortation has been delivered by the *vyútha* 256.[1]

Thus says the Beloved of the gods :—Obedience should be rendered to mother and father. So also regard for living creatures should be made firm. Truth should be spoken. These and the like virtues of the *dhamma* should be practised. So also the disciple should honour his teacher. And due respect should be paid to kindred. This is the ancient natural way. This also tends to long life, and this should thus be done. Written by Paḍa the scribe.

The above will suffice to show the earnestness and high moral tone of these singular and interesting inscriptions, so unlike any others met with in the country. The sentence about the men who were regarded as gods in Jambudvipa or India is considered to refer to the Brahmans, and to their being now deprived of the almost divine prestige they had arrogated. At the same time, the duty of reverence to them and the bestowal of alms both upon Bráhmaṇas and S′ramaṇas is more than once inculcated. Toleration was denied only to their false claims.

Asoka's son Mahindo and his daughter Sanghamitta entered the holy order and introduced Buddhism into Ceylon. It may be noted here that Asoka never calls himself by that name in his inscriptions, but always Piyadási or Devánam Piye. Of his grandson Dasaratha (in Prakṛit called Dashalatha) some inscriptions have been found at the Nágárjuni hill caves.[2]

According to the Puranas the Maurya dynasty continued in power for 137 years, and Brihadratha, the last king, was murdered by his general Pushyamitra, who founded the S′unga dynasty. Agnimitra is mentioned as the son of Pushyamitra in the play called Málavikágnimitra, and as reigning at Vidisa, identified with Bhilsa in Central India. An inscription of the time of the S′ungas was found by General Cunningham in the Stupa at Bharhut in Central India.[3] They are said to have ruled for 112 years, but for the latter part of that period were superseded by the Kanva family, who were supreme for 45 years. These may have been at first subordinates, as they are called in one place S′unga-bhrityas. Sus′arman, the last Kanva king, was overthrown by Simuka, described as a servant of the race of A′ndhras,[4] and he was the

[1] The signification of this term and of the numerals is much disputed.

[2] *Ind. Ant.*, XX, 364. [3] *ib.*, XIV, 138.

[4] The A′ndhras are described by Ptolemy as a powerful nation, under the name of *Andaræ*. They are also mentioned in Pliny.

founder of the line of kings thence called in the Puranas the A'ndhrabhrityas.[1]

Satavahanas.—But from inscriptions it seems more correct to call them the S'átaváhana dynasty, a name corrupted in Prákrit to S'áliváhana. Their chief capital appears to have been at Dhanakaṭaka, in the east (Dháranikotta on the Krishna, in Guntur taluq), but their chief city in the west was Paithan on the Godavari. Inscriptions found at Nasik and Nanaghat[2] provide us with the following names (in their Prakrit form) and succession. The peculiarity that the name of his mother always appears with that of the king may be also remarked in the Sunga inscription, and is a Rajput custom due to polygamy. Thus we have Gotamiputra Sátakani, Vasithiputra Pulumáyi, and so forth.[3]

		A.D.
Simuka.		
Kanha (Krishna)	reigned at least	
S'átakaṇi, son of Gotami	24 years	— 137?
Pulumáyi, son of Vasithi	24 ,,	
Sirisena, son of Mádhari	8 ,,	
Chaturapana S'átakaṇi, son of Vasithi ...	13 ,,	— 182?
Siriyana S'átakaṇi,[4] son of Gotami	27 ,,	

Kháravela's inscription in Kalinga tells us of a Sátakani in the 2nd century B.C., but these kings are assigned to the 2nd century A.D. on the dates of the contemporary Kshatrapas or Satraps of Suráshṭra in Kathiawar, and other coincidences. Thus, the first Sátakaṇi was victorious over Nahapána, and destroyed the dynasty of the Khaharatas or Khakharatas. Rudradáman, grandson of Chashṭana, was the conqueror of a Sátakaṇi, perhaps Chaturapana.[5] Again, Ptolemy, who wrote his Geography soon after 150 A.D., describes Ozene (Ujjayini) as the royal seat of Tiastenes, Baithan (Paithan) as that of Siri Polemaios, and Hippokoura, in the south of Ariake (Mahárásthra), as that of Baleokouros.[6] In these names it is not difficult to recognize Chashṭana, Siri Pulumáyi, and Viliváyakura, who are known to us from inscriptions and coins. Chashṭana was the founder of the dynasty of Kshatrapa Senas,[7] which succeeded that of the Kshaharatas, ending with Nahapána. Siri Pulumáyi was the S'átaváhana king, the son of Vasithi, given in the list above. Viliváyakura was the viceroy of the Sátavahanas, governing the southern provinces.[8]

[1] Bhandarkar, *Early Hist. of the Dekhan.*

[2] *Arch. Surv. W. Ind.*, iv, v.

[3] *See* Dr. Bühler's explanation in Cunningham's *Stupa of Bharhut*, p. 129. These do not give us the actual names of the mothers, but the latter, as in the case of Rájas too, are called after the *gotra* of their family priest.

[4] In Sanskrit, S'rí Yajña Sátakarṇi.

[5] Senart, *Ind. Ant.*, XXI, 206.

[6] McCrindle, *Ptolemy's Geog.*, *ib.*, XIII. 359, 366.

[7] The following are the early names:—Chashṭana, Jayadáman, Rudradáman, Rudrasimha, Rudrasena.

[8] Bhandarkar, *op. cit.*

To revert to the kingdoms which arose out of Alexander's empire. We know that Egypt under the Ptolemies and Syria under the Seleukidæ were eventually conquered by Rome. But the Greek kingdom of Baktria was overthrown by a people from the north, called the Tochari (whence its name of Tocharistan), who next advanced westward against the kingdom of Parthia, founded in 250 B.C. by Arsakes, who had revolted against the Seleukidæ. Artabanus, king of Parthia, fell fighting against the Tochari, but his son Mithridates II. (124 B.C.) drove them back towards Kabul and India. Meanwhile, Saka or Turushka tribes from Central Asia had poured into Baktria, and by about 24 B.C. had firmly established themselves in the north-west of India.

From coins and other sources we obtain various names of kings, such as Heraüs, Gondophares and others, but the best known are the Saka kings Kanishka, Huvishka, and Vasudeva, or, as they are called on their coins, Kanerki, Ooerki, and Bazodeo. They belonged to the Kushána family, and Kashmir was the chief seat of their power. But Kanishka's empire extended from Yarkand and Khokand in the north to Agra and Sindh in the south. The last great Buddhist council was held in his reign. The best authorities are of opinion with Dr. Oldenberg that the Saka era, reckoned from 78 A.D., dates from his coronation. But the word Saka after some centuries came to be misunderstood as itself meaning "era," and therefore, to distinguish it, was at length, more than a thousand years after its origin, called the S'áliváhana S'aka, a reminiscence of the fact that it had been adopted by the Sátaváhanas. This is the era still in common use throughout the south of India, as well as in Bengal.[1]

We may now return to the S'átaváhanas. Their rule in the northern parts of Mysore is proved both by inscriptions and coins. There was a find of Buddhist leaden coins a few years ago[2] at the site of an ancient city whose name, according to tradition, was Chandrávali, situated immediately to the west of Chitaldroog, and among these was one bearing the name of Pulomayi. Again, an inscription of Sátakaṇṇi, son of Háriti, was found some time ago[3] at Banavasi on the Sorab frontier. And recently I have found one also of Sátakaṇṇi, son of Háriti, at Malavalli in Shikarpur taluq. Both the Sátakarnis above mentioned are described as "joy of the Vinhukaḍḍavuṭu family," but the

[1] The era of Vikramáditya, reckoned from 56 B.C., seems to be equally a misnomer. No instance of its use with such a name has been found for 500 years after that date. But Dr. Fleet identifies it with the Málava era.—*Ins. of the Early Gupta Kings.*

[2] By Mr. Mervyn Smith, a mining engineer, prospecting for gold.

[3] By Dr. Burgess: for Dr. Bühler's translation see *Ind. Ant.*, XIV, 331.

Banavasi inscription is in characters which appear to be of a somewhat earlier type than those of Malavalli, and corresponding with the alphabet of Siriyána Sátakarni's inscription at Nasik. On this ground, and also on account of the dates, though they are both in the same Pali or Prakṛit language, it is possible that they may belong to the time of different kings of the same name. Their relationship to the S'átavá-hanas before mentioned does not appear, but they probably represent a branch of the dynasty.[1] At Malavalli, Sátakarṇi is called king of Vaijayanti, or Banavasi, and the inscription at the latter place implies the same.

The Banavasi inscription is dated in the twelfth year, the first day of the seventh winter fortnight, and records a gift by the king's daughter, the Mahábhóji Sivakhada-Nágasiri. The Malavalli inscription begins with ascriptions of victory to the holy Maṭṭapaṭṭi deva, evidently the god of Malavalli. At the present time this is a most ordinary linga, called Kalles'vara, in a most insignificant village temple, nor are there any indications about the place of former grandeur except the inscription. It is dated in the first year, and the first day of the second summer fortnight. In it the king Sátakarni issues an order to the Mahávalabham S'ungakam. If the reading of this last name be correct, it looks like an interesting link with the S'ungas, previously mentioned. The grant consists of certain villages for the Maṭṭapaṭṭi god. There is a second inscription on the same stone pillar, in similar characters and language. It is dated in the fourth year, on the second day of the first autumn fortnight, and records a fresh grant for the same god by a Kadamba king, name defaced, and was engraved by Vis'vakamma. A fine Kadamba inscription at Talgunda also names Sátakarṇi as one of the great kings who had visited the temple there.

The Sátakarṇis were undoubtedly succeeded by the Kadambas in the north-west of Mysore. From this time, the third century, we enter upon a period more amply elucidated by authentic records.

While the north-west was, as stated, in the possession of the Kadambas, part of the north was under the rule of the Ráshṭrakúṭas, or Raṭṭas. The east was held by the Mahávalis and the Pallavas, and the centre and south came to be occupied by the Gangas, who partially subdued the Mahávalis. In the fifth century the Chalukyas from the north reduced the Raṭṭas and the Kadambas to the condition of feudatories and prevailed against the Pallavas, who were also attacked by the Gangas. Early in the ninth century the Raṭṭas regained power

[1] Similarly, in the Jaggayyapeta stupa was found an inscription of another branch, of the time of Purisadatta, son of Mádhari, in which he is said to be of the Ikháku Ikshváku) family.—*Arch. Surv. S. Ind.*, No. 3, p. 56.

over the Chalukyas, and for a short time took possession of the Ganga kingdom, but restored it and formed an alliance with the Gangas, with whom also were allied the Nolambas, a branch of the Pallavas, established in the north-east of Mysore. In the tenth century the Raṭṭas with the Gangas gained great success over the Cholas, but the close of that century saw the Chalukyas once more in the ascendant, bringing the rule of the Raṭṭas to a final end, while the Nolambas were uprooted by the Gangas. The eleventh century began with a powerful invasion of the Cholas from the south, in which the Gangas and the Pallavas were overthrown ; but from the ruins of the Ganga empire arose the Hoysalas, who drove out the Cholas from Mysore and established a firm dominion. In the twelfth century the Chalukya power was subverted by the Kalachuryas, in whom the Haihayas reappear ; and they, in their turn, were shortly dispossessed on the north by the Yadavas and in the south by the Hoysalas, who also before long subdued the Cholas. But both Yadavas and Hoysalas were overthrown in the middle of the fourteenth century by the Musalmans. The Vijayanagar empire, however, then arose, which held sway over the whole of South India till the latter half of the sixteenth century, when it was subverted by a confederacy of Musalman powers. Of these, Bijapur secured a great part of Mysore, but was overcome in the seventeenth century by the Mughals, who took possession of the north and east of the country. Meanwhile the Mysore Rajas gained power in the south, during the contests which raged between the Mahrattas and the Mughals, and between rival claimants on the death of Aurangzeb. Haidar Ali extended the Mysore dominion over the Mughal provinces in the east and north, and over Bednur in the west, usurping supreme power in 1761. On the capture of Seringapatam by the British and the downfall of Tipu Sultan in 1799, the country included within the present limits was granted to the representative of the Hindu Rájas. In 1832 it was placed under British Commissioners, but restored to native rule in 1881. Such is an outline of the changes of seventeen centuries, the details of which we may now proceed to fill in.

Kadambas.—The dominions of the Kadambas embraced all the west of Mysore, together with Haiga (N. Kanara) and Tulava (S. Kanara). Their original capital was Banavasi (Jayantipura or Vaijayantipura), situated on the river Varada on the western frontier of the Sorab taluq. It is mentioned by Ptolemy. Also in the Mahawanso, which names it as one of the places to which a *thero* was sent in the time of Asoka.

The origin of the Kadambas is thus related. Some years after Parasu Rama had recovered Haiga and Tulava from the sea, Siva and

Parvati came to the Sahyádri mountains, the Western Ghats, in order to look at this new country; and in consequence of their pastimes a boy was born under a *kadamba* tree, whence the name of the dynasty. According to another version, he was born from the drops of sweat which flowed from Siva's forehead to the root of the kadamba tree in consequence of his exertion in conquering the asura Tripura. A more realistic account, given in an inscription, is that a kadamba tree grew in front of the family residence, and that by cultivation of it they acquired its name and qualities.[1] In any case they appear to have been an indigenous race.

The people of the country, being at the time without a monarch, had recourse to the State elephant, which, being turned loose carrying a wreath, presented it to the youth whose birth was so miraculous, and he was consequently proclaimed king. He is variously styled Jayanta, Trilochana Kadamba, and Trinetra Kadamba. The royal line thus founded, in about the second century, continued independent till the sixth century, and during this period they claim to have performed many as'vamedhas or horse sacrifices, indications of supreme authority. Their family deity was Madhukes'vara of Banavasi.

After Trinetra the kings in regular succession ascribed to this line were Madhukesvara, Mallinatha and Chandravarma. The last had two sons, named Chandravarma or Chandavarma and Purandara, the elder of whom was the father of Mayúravarma. Of these early kings it is not improbable that the first Chandravarma may be the Chandrahása whose romantic story has already been given above (p. 282). The second Chandravarma, again, may be the prince of that name who was the progenitor of the Kodaga or Coorg race. Of him it is related that he rescued from a forest fire a serpent named Manjista, which, entering his mouth, took up its abode in his stomach. He was forced to wander about, with his wife Pushpavati, in search of a cure, which was eventually effected at Valabhi by a woman[2] whom he was obliged in return to marry, and desert his wife, then with child. The truth probably is that his kingdom was usurped by some Nága chief, such as we know were

[1] The tree itself is said to have been produced by a drop of nectar which fell upon the earth from the churning stick, the Mandara mountain, at the churning of the ocean. The tall and handsome trees bearing this name are species of *nauclea*, of the natural order *cinchoniaceæ*, and grow in many parts of India. A spirit is said to be distilled from the flowers. (*See* Wilson's *Vishnu Purana*, Bk. v, ch. xxv.) In Watt's Dictionary the tree is described as an *anthocephalus*, belonging to the *rubiaceæ*, and the flowers are said to be sacred to Siva. According to the *Pharmacographia Indica* it is the *arbor generationis* of the Mahratta Kunbis, and a branch of it is brought into the house at the time of their marriage ceremonies.

[2] She was the attendant at the *chatram* in which he lodged, and advised him to

special enemies of the Kadambas.[1] According to the Kávéri Purána, Chandravarma was a son of Siddhártha, king of Matsya (Viráta's capital, Hángal in Dharwar, one of the Kadamba chief cities). He left his country, it is said, and went on a pilgrimage to all the holy bathing-places, until Parvati appeared and offered him a boon, in consequence of which he received a kingdom at the source of the Kaveri, and a Sudra wife, from whom he, as a Kshatriya, should beget a valiant race called Ugras. For the eleven sons he had by her the hundred daughters of the king of Vidarbha (Berar) by Sudra mothers were obtained as wives. Each of these bore more than a hundred sons, who, to provide accommodation for their growing numbers, levelled the hill slopes and settled over a district five yojanas in extent at the sources of the Kaveri river in Coorg.

Mayúravarma seems to have restored the authority of the Kadambas, and is sometimes represented as the founder of the line. He was the son of whom Chandravarma's wife was delivered at Valabhi after she had been deserted. The following is the legend of the manner in which he acquired the throne:—One night some robbers got into the house of a Brahman at Valabhi, and at the same time a peacock in the yard screamed. They then overheard the Brahman laughing and telling his wife the story of the peacock. He said that a Brahman of Banavasi once performed various penances with the view of becoming a king, but a voice from heaven informed him that he was destined to be born again as a peacock, and whoever should eat the head of the peacock would be king. On this he went to Benares to die, and was re-born as the peacock now in the yard. Hearing this the robbers made off with the peacock, but immediately fell disputing as to who should have the head. To decide the matter they resolved to ask the woman staying in the chatram to cook the bird for them, and see to whom she gave the head. But while she was getting the meal ready, her little son suddenly snatched up the head and ate it. Being thus clearly indicated as heir to the throne, the robbers conveyed him and his mother to Banavasi, and had just arrived at the outskirts of the town when they met the State elephant carrying a wreath, which it at

worship the goddess Kálika and the effigy of a serpent carved on a stone at the back of her temple. On his doing so another serpent appeared out of an ant-hill, and tried to persuade Manjisṭa to come forth, but without success. The woman, overhearing the dispute between the two, speedily possessed herself of certain plants they had threatened to use against each other,—*vishamardi* and *sarpamári*, growing at the foot of an ant-hill, and *ahindra hari*, a creeper spreading over the *asvattha* tree. Manjisṭa was expelled and died by virtue of the juice of the former, and the other serpent was got rid of by that of the latter.

[1] *See Ind. Ant.*, XIV, 13.

once presented to the boy. His origin being revealed, he was forthwith recognized as king of Banavasi, under the name of Mayúravarma, from *mayúra*, peacock. He there obtained "the sword of sharpness, the shoes of swiftness, and the garment of invisibility." He is said to have rescued Sasiprabhe, the wife of Raja Vallabha, prince of Kalyána, from a Yaksha named Kandarpa Bhúshana, living in Gomanta-guhe, who had carried her off. He received in consequence a large accession of territory, together with the Kalyána princess S'as'ánkamudre in marriage.

He is also stated to have introduced Brahman colonists from Ahichchatra (in Rohilkand), and distributed the country below the Ghats into sixty-four portions, which he bestowed upon them. In the reign of his son Kshetravarma, Chandrángada or Trinetra, these Brahmans attempted to leave the province, but they were brought back; and in order to prevent a repetition of the attempt were compelled to leave unshorn a lock of hair on the forehead as a distinguishing mark. From these are descended the Haiga or Havika Brahmans of the north-west of Mysore. They would appear on this occasion to have been settled by Mukanna, that is, Trinetra, above the Ghats, at Sthánagundúr (Tálgunda in Shikarpur taluq). During his reign, a kinsman named Chandrasena ruled the south of Tulava, and the Brahmans were spread into those parts. Lokáditya or Lokádipya, the son of Chandrasena, married Kanakávati, the sister of Trinetra, and had by her a daughter, whom Hubásiga, the king of the mountain Chandálas, sought as a wife for his son. In pretended compliance, he was invited to Tripura and there treacherously murdered. The authority of the Kadambas was extended in consequence above those Ghats, and the Brahmans followed this accession of territory. Lokádipya is said to have reigned fifty years.

These traditions no doubt include much that is entitled to credit. But a fine stone inscription at Talgunda gives a different version, which seems to refer to the same period, or to a time when the Pallavas were supreme from west to east. In it we are informed that a Brahman named Mayúras'arma of the Kadamba family, who are described as very devout Brahmans, went with his guru Viras'arma to the Pallava capital (Kanchi) to study. While there a sharp quarrel arose between him and the Pallavas, and he became so enraged that he resolved, although a Brahman, to become a Kshatriya in order to revenge himself. Arming himself and overcoming the Pallava guards at the frontier, he escaped to the inaccessible forests at Sriparvata (in Karnul district, near the junction of the Tungabhadra and Krishna rivers), and there attained such power that he levied tribute from the great Bána and other surrounding kings. The Pallavas thereupon led an army against him, but

he swooped down upon them like a hawk and completely defeated them. They therefore resolved to make peace with him, and invested him with a territory extending from the Amara ocean to the borders of the Premára country.[1] His son was Kangavarma, whose son was Bhagiratha, sole ruler of the Kadamba territories. His son was Raghupárthiva, whose brother was Kákustha or Kákusthavarma. The latter was a powerful ruler, and his daughters were given in marriage to the Gupta and other kings. His son was S'ántivarma.

The two last names occur in other inscriptions, but the rest are new. Several more early Kadamba inscriptions are available, but unfortunately they are dated only in the year of the reign, or by the ancient system of the seasons, and the succession of the kings cannot on this account be definitely determined. One series gives us Krishnavarma; his son Vishnuvarma, by the daughter of Kaikeya; his son Simhavarma; and his son Krishnavarma.[2] Another gives us Krishnavarma and his son Devavarma.[3] We have also Mándhátrivarma, whose grant was composed by Dámodara-datta,[4] and there is a separate rock inscription by Dámodara.[5] We havealso the series Kákustha or Kákusthavarma, his son S'ántivarma; his son Mriges'avarma; his three sons Ravivarma, Bhánuvarma, and Sivaratha; and the son of the first of these, Harivarma.[6]

All these records, relating to at least sixteen generations, undoubtedly belong to some time between the third and sixth centuries. One stone inscription in Prákrit, immediately following a grant by Sátakarni, and another in Sanskrit, are engraved in small Cave characters. The remainder, all in Sanskrit, are engraved in bold characters called box-headed, which in certain specimens present a very elegant appearance. Many of the grants are to Jains, but a few are to Brahmans, one to an Atharvani Brahman.

The historical facts deduced from them are that the Kadambas claim to be lords of Vaijayanti or Banavasi, though certain grants are issued from Triparvata, from Palásika (Halsi in Belgaum district), and from Uchchás'ringi. Like the Sátakarni who preceded them at Banavasi, they are stated to be of the Mánavya gotra and sons of Háriti. Their crest was a lion, and they bore the monkey flag. They seem to have had enemies in a Nága race, represented later probably by the Sindas of Erambarige (Yelburga in the Nizam's Dominions),[7] and Krishna-

[1] Perhaps the Pramára kingdom of Malwa in Central India is meant. Amarárnava, the other limit, is difficult to determine, unless it means the Western Ocean.

[2] Grant at Halebid, Belur taluq. [3] *Ind. Ant.*, VII, 33.

[4] Grant at Kudagere, Shikarpur taluq. [5] *Ind. Ant.*, XXI, 93. [6] *ib.*, VI, 22ff.

[7] These deduce their genealogy from Sinda, king of the Sindhu country, who was born in Ahichchhatra, and married a Kadamba princess. Fleet, *Kan. Dyn.*, 97. *See* also *Ep. Ind.*, III, 231.

varma, father of Devavarma, claims to be in possession of a heritage not to be attained by the Nágas. But their great rivals were the Pallavas. We have seen evidence of this in the Talgunda inscription above, and from an independent stone inscription of Krishnavarma it appears that in one severe battle with the Pallavas his army was so completely destroyed that he gave up his life to save his honour. The sister of a Kadamba king. Krishnavarma, was (according to Ganga grants) married to the Ganga king Madhava II. Mriges'avarma claims to have uprooted the lofty Ganga family and to be a fire of destruction to the Pallavas. Ravivarma, again, slew Vishnuvarma, probably a Pallava, and uprooted Chandadanda, lord of Kanchi, and thence a Pallava, thereby establishing himself at Palasika.

The Kadambas lost their independence on being conquered by the Chalukyas under Kirtivarma, whose reign began in 566. But they continued to act as viceroys and governors under the Chalukya and other dynasties, and the name does not disappear from history till the rise of Vijayanagar in 1336. Among the later inscriptions, one at Kargudari (Hangal taluq)[1], dating in 1108, gives the following traditional list of the kings, each being the son of his predecessor. After seventy-seven ancestors, of whom we know no more, there came Mayúravarma, Krishna (add varma to each), Nága, Vishnu, Mriga, Satya, Vijaya, Jaya, Nága, S'ánti, Kírtti, A'ditya, Chattaya, Jaya. The last had five sons, Taila and S'ántivarma being the most important. The latter's son was Taila, whose son was Tailama, whose sons were Kirtti and Káma. But though this includes some of the genuine names, and allowing for kings often having more than one name, the list as a whole is of doubtful credit, except in the last stages. There is no question, however, that the Kadambas became more prominent at the end of the eleventh century, when their alliance seems to have been sought by the Chalukya Vikrama in his plans against his brother, and on his success they were advanced in honour. A separate branch had its capital at Gopaka or Goa, but all the Kadambas were absorbed into the conquests of the founders of the Vijayanagar empire.

Mahavalis.—The Mahávali kings were of great antiquity, and, according to their inscriptions, ruled over a seven and a half lakh country, containing 12,000 villages, situated in the west of the Andhra or Telugu country. They were in possession of the east of Mysore, where several of their inscriptions are found, especially in Mulbagal taluq, and their kingdom was evidently to the east and north of the Palar river. They claim to be descended from Bali or Mahá Bali, and his son Báṇa, whence they are also styled the Báṇa kings. According

[1] *Ind. Ant.*, X, 249.

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to Hindu mythology Bali was an Asura emperor, who through his devotion and penance defeated Indra, humbled the gods and extended his authority over the three worlds. In order to restrain him, Vishnu, who was appealed to by the gods for protection, assumed his fifth incarnation, the form of the Brahman dwarf, the *vámana avatára*, and appearing before Bali, asked for only three paces of ground as a boon, which was granted. As the water conveying the gift fell into his hand, the dwarf's form expanded till it filled the world; and Vishnu, now manifesting himself, deprived Bali in two strides of heaven and earth, but on account of the virtues the latter possessed, left Pátála or the infernal regions still in his dominion.

The ancient ruined city of Mahábalipura or Mámallapura, generally known as the Seven Pagodas, situated on the east coast, thirty miles south of Madras, was perhaps their original capital. According to legend[1] it was founded by Bali. His son was Báṇásura, who is represented as a giant with a thousand hands; Aniruddha, the son (or grandson) of Krishna, came to Báṇa's court in disguise and seduced his daughter; which produced a war, in the course of which Aniruddha was taken prisoner and brought to Mahábalipur: upon which Krishna came in person from his capital Dváraka and laid siege to the place. Siva guarded the gates and fought for Bánásura, who worshipped him with his thousand hands, but Krishna found means to overthrow Siva, and having taken the city, cut off Bánásura's hands, except two, with which he obliged him to do homage. He continued in subjection to Krishna till his death, after which a long period ensued in which no mention is anywhere made of this place. It seems to have been subsequently destroyed by an inundation of the sea. The inscriptions now found there appear to be all Pallava, of about the seventh century, or Chola, of later date than that.[2]

The oldest Mahávali inscription bearing a date is one professing to be of 339 A.D., found by me at Mudiyanur (Mulbagal taluq).[3] But from the one which contains the fullest genealogy of the line, published by the Rev. T. Foulkes,[4] there were several generations before that. As aids towards fixing the period of the kings we have the statements that the early Kadamba outlaw of S'riparvata levied tribute from the great Báṇa; that the first Ganga king, assigned to the second century, conquered the Báṇa country; that the Chalukya king Vikramáditya I., ruling in the seventh century, subdued Rájamalla of the Mahámalla family; that the Chola king, Vira Náráyana,

[1] *See* Captain Carr's *Seven Pagodas*, 13; *Asiatic Researches*, I, 156.

[2] Hultzsch, *So. Ind. Ins.*, I, 1ff.

[3] *Ind. Ant.*, XV, 172.

[4] *ib.*, XIII, 6; *Ep. Ind.*, III, 74.

uprooted the Bánas about the end of the ninth century; but that they were replaced soon after by the Gangas in the person of Hastimalla.[1]

The genealogy as derived from inscriptions is as follows:—

Bali, Mahábali; his son
Báṇa, in whose line was born
Báṇádhirája.

After he and many other Báṇa kings had passed away, there were:—

Nandivarma, Jayanandivarma.
Vijayáditya I.
Malladeva Nandivarma, Jagadekamalla, Vadhúvallabha.
Báṇa Vidyádhara.
Prabhumeru.
Vikramáditya I.
Vijayáditya II.
Vikramáditya II, Vijayabáhu.

Each of these eight kings was the son of his predecessor. The Mudiyanur inscription is of the twenty-third year of No. 3. Stone inscriptions exist in Mysore of Nos. 4 and 5. There are also inscriptions of a Bejeyitta Báṇarasa, one dating in 899. He may be identified with Vijayáditya II. Vikramaditya II. is said to have been the friend of Krishna Raja, no doubt the Rashtrakuta king, ruling in about 940 to 956. Then an inscription dating in 971 presents to us Sambayya, who, though invested with all the Mahávali titles, was ruling as a governor subordinate to the Pallavas. The line must therefore have lost its independence in the latter half of the tenth century. Extracts are given by Mr. Foulkes[2] from literature indicating a recognition of the power of the Bána kings in the thirteenth and fifteenth centuries. Moreover, at the end of this latter period, inscriptions at Srivilliputtur in Tinnivelly district show that two kings named Sundara Tol and Muṭṭarasa Tirumala, calling themselves Mahávali Bánádhirája even obtained possession of the Pandya throne. Except these and the Salem inscriptions, which are in Grantha and Tamil characters, all the other inscriptions of this line are in the ancient Kannaḍa characters and in the Sanskrit and Kannaḍa languages. Some of their later inscriptions indicate Paduvipuri as their capital, which may possibly be identified with Padavidu in North Arcot district, south of Vellore, where there are extensive ruins, the ancient city having been destroyed apparently by a volcanic eruption. Their crest was the recumbent bull Nandi, and they had a black flag.

[1] *See Ind. Ant.*, XIII, 6, 187.

[2] *Loc. cit.*

Vaidumbas. Inscriptions of these kings are met with in Chintamani taluq. The Kalinga Ganga king Vajrahastu V. married a Vaidumba princess; and the Chola king Parántaka subdued a Vaidumba king.

Pallavas.—The Pallavas were a powerful dynasty who succeeded to the dominions of the Andhrabhritya or S'átaváhana family throughout the region in which the Telugu language prevails. They seem at first to have had a chief city at Vátápi (Bádámi in Bijapur district), from which they were expelled by the Chalukyas in the fifth century, and also at Vengi, between the Krishna and the Godavari, which was taken from them by the Chalukyas in the seventh century. But from an early part of their history their capital was Kánchi (Conjeveram, near Madras). Their grants are also issued from Palakkada and Dasanapura, the latter name being perhaps a translation of the former. This place has not been identified, but may be the Palakka of the Samudra Gupta inscription at Allahabad. Trichinopoly seems to be the southernmost point in which Pallava inscriptions have been found. Stone inscriptions in the Kolar, Chitaldroog, Tumkur and Bangalore Districts bear evidence that the Pallavas in the ninth and tenth centuries exercised dominion throughout the north and east of Mysore. Here they frequently had the cognomen Noḷamba, and their territory came to be known as Noḷambavádi or Noṇambavádi, a Thirty-two Thousand province, the subjects of which are represented by the Noṇabas of the present day.

The origin of the Pallavas is uncertain, though they profess in some grants to be of the Bháradvája gotra. They are mentioned in the Puranas along with the Haihayas, S'akas, Yavanas, &c., as Pahlavas, which would imply a Persian source. But Professor Weber says[1] :—"As the name of a people this word Pahlav became early foreign to the Persians, learned reminiscences excepted: in the Pahlav texts themselves, for instance, it does not occur. The period when it passed over to the Indians, therefore, would have to be fixed for about the second to the fourth century A.D., and we should have to understand by it, not directly the Persians, who are called Párasikas rather, but specially Arsacidan Parthians.[2] Pallava may possibly be derived from Párthava (Parthian).

According to tradition, from S'áliváhana, that is S'átaváhana, who ruled at Pratishthána (now Paithan, on the Godavari), were descended Mádhavavarma, Kulaketana, Nilakantha, and Mukunti Pallava. The last appears as the founder of the Pallava line, and is said to have been

[1] *Hist. Ind. Lit.*, 188.

[2] The Parthians revolted from the Seleucidæ about B.C. 150, under a chief named Arsakes (Askh), who founded an independent monarchy. The Parthians subsequently overran the provinces east of the Euphrates, and about B.C. 130 overthrew the kingdom of Bactria, so that their empire extended from the Euphrates to the Indus, and from the Indian Ocean to the Paropamisus, or even to the Oxus. The

a son of Mahadeva (Siva) by a girl of the mountain tribe called Chensuars (Chensabara).[1] He is also stated to have introduced Brahmans into his country in the third century.

Trilochana, Trinetra, or Trinayana Pallava, was ruling in the fourth century when Jayasimha, surnamed Vijayáditya, of the Cáhlukya family, invaded his territories. But the latter lost his life in the attempt, and his queen, then pregnant, fled and took refuge with a Brahman named Vishnu Somayáji, in whose house she gave birth to a son named Rájasimha. On attaining to man's estate the latter renewed the contest with the Pallavas, in which he was finally successful, and eventually married a princess of that race.[2]

Resorting to inscriptions, one at Nasik says that Sátakarni, son of Gotami, destroyed the Pahlavas, with the Sakas and Yavanas;[3] and one at Junágadh that a Pallava named Suvis'ákha, son of Kulaipa, was minister to the Kshatrapa Rudradáman.[4] But in the east we obtain the names of several series of Pallava kings, whose period seems sufficiently certain, although their exact dates are for the most part not known, nor in several cases their relationship and order:—

Chanḍavarma, ? Chanḍadanḍa	300
Nandivarma	
Skandavarma	to
Buddhavarma	
S'ivaskandavarma	400
Skandavarma	400
Viravarma	
Skandavarma	to
Simhavarma	
Vishnugopavarma	500
Simhavishnu	
Ugradanda, Lokaditya	
Rájasimha, ? Jayasimha, Simhavishnu, Narasimhavishnu, Atyantakáma, ? Atiraṇachanḍa	c. 550
Mahendravarma I.	
Narasimhavarma, Narasimhapotavarma I.	c. 620
Mahendravarma II.	
Parames'varavarma I, Is'varapotarája	c. 670
Narasimhavarma, Narasimhapotavarma II.	c. 675
Parames'varavarma II.	
Nandivarma	
Pallavamalla Nandivarma, Nandipotavarma	c. 733
(Skandavarma)	
(Simhavarma) Hemasitala	788
(Skandavarma) Dantiga	804
Nandivarma	c. 810
Nolambádhirája, Mangala	
Simhapota	
Cháru Ponnera, Pallavádhirája	
Polalchora Nolamba, Nolambádhirája	881
Mahendra, Bira Mahendra	
Ayyapa, Nanniga	919
Anniga, Bira Nolamba, Annayya	
Dilipayya, Iriva Nolamba, Nolapayya	943–974
Nanni Nolamba	975–977

memorable wars between the Parthians and the Romans eventually weakened the former, and gave the Persians the opportunity of throwing off the Parthian yoke. Led by Artaxerxes (Ardashir), they put an end to the Parthian kingdom of the Arsacidæ, after it had lasted 476 years, and established the Persian dynasty of the Sassanidæ, A.D. 226.

[1] Wilson, *McK. Coll.*, I, cxx, cxxiv.
[2] Sir Walter Elliot, *Mad. J.*, IV, 78.
[3] *Arch. Surv. W. Ind.*, IV, 108.
[4] *Ind. Ant.*, VII., 257.

The grants of the first five,[1] made to Brahmans, are in Prakrit, and issued from Vengi, except the last, which is from Kánchi. Chandavarma might be the Chandadanda who was defeated by the Kadamba king Ravivarma. Nandivarma was his son. They claim to be of the Sálankáyana family. The next two were father and son, and are expressly called Pallavas, but in what relation they stood to the foregoing is not known. Sivaskandavarma, again, refers to his *bappa*, or father, without naming him: it is uncertain therefore who he was. The next series of six[2] appear in grants in Sanskrit, also to Brahmans, issued from Palakkad and Dasanapura. Simhavarma and Vishnugopa were probably brothers, otherwise the succession was from father to son. In the Samudra Gupta inscription on the Asoka pillar at Allahabad, assigned to the fourth century,[3] we have mention among the southern kings of Vishnugopa of Kánchi, Hastivarma of Vengi and Ugrasena of Palakka, as well as a Chandravarma in the north. It seems very probable that these may have been some of the above.

With Ugradanda we come to a period of somewhat greater certainty, and the list of kings[4] admits of arrangement based on their points of contact with the Chalukya and other contemporary kings whose dates are known.[5] Several of the names are alternately Saiva and Vaishnava, while the designation Pota seems to be Buddhist. The remarkable buildings and sculptures at Mámallapura, or Seven Pagodas, also relate to these three faiths. Numerous Pallava inscriptions furnish us with details of the history of this period. Those at Mámallapura, Sáluvankuppa, and Kánchi are in Sanskrit, and inscribed in four different alphabets, one of which is of an extremely florid character.[6]

Ugradanda claims to have destroyed the town and army of Ranarasika, that is, the Chalukya king Ranarága. Rájasimha married Rangapatáka, and built the Rájasimhes'vara temple at Kánchi, now known as the Kailásanátha. The Ganga king Durviníta, reigning at about this time, is said to have taken Káduvetti (Karveti nagara, North Arcot) from the king of Kánchi called Jayasimha, and placed the son of his own daughter upon the throne. A series of wars, attended with varying fortune, took place in succeeding reigns between the Pallavas and the Chalukyas, who describe the former as being by nature hostile, as if there were some radical cause of animosity between the two. Narasimhavarma I. is said to have repeatedly defeated Vallabharája, that is, the Chalukya king Pulikesi II., and destroyed Vátápi, while on

[1] *Ind. Ant.*, V, 176; IX, 100: *Ep. Ind.*, I, 5.
[2] *Ind. Ant.*, V, 50, 154.
[3] Fleet's *Ins. of the Early Gupta Kings*, No. I.
[4] *Ind. Ant.*, VIII, 273.
[5] *See* Hultzsch, *So. Ind. Ins.*, I, 11, 145: I have made a few alterations in the arrangement, which seem to me required.
[6] *Op. cit.*, I.; *Sev. Pag.*, pl. 14, 15, 18.

the other hand Pulikesi claims to have made the leader of the Pallavas hide his prowess behind the ramparts of Kánchi. It is pleasant to turn aside from these scenes of violence to the account of the Chinese pilgrim Hiuen Tsiang, who visited Kánchipura (Kin-chi-pu-lo) in 640. He says it was about thirty li, or five miles, round. The soil was fertile and regularly cultivated. The climate was hot ; the character of the people courageous. They were deeply attached to the principles of honesty and truth, and highly esteemed learning. There were 10,000 Buddhist priests, some eighty Brahman temples, and many Nirgranthas (or Jains).[1]

Paramesvaravarma I. is said to have put to flight Pulikesi's son Vikramáditya I., who, on the other hand, says that he conquered Is'varapotarája and took Kánchi. The Chalukyas admit that the Pallavas had been until this unconquered, for the important Vokkaleri inscription[2] says that the king of Kánchi, "who had never bowed to any man," was forced to kiss the feet of the conqueror with his crown. Vinayáditya, the next Chalukya, is also said to have captured the army of the Pallava king, here called Trairájya. Narasimhapotavarma II. was killed in a battle at Velanda with the Ganga king Bhúvikrama, being trampled under the elephants. Two grandsons of his were apparently brought up by the Gangas. But the greatest disaster of all was that which befell Nandipotavarma. The Chalukya king Vikramáditya II., soon after his coronation in 733, by a rapid movement penetrated to the Tuṇḍáka province (Toṇḍa-manḍala),[3] and in a pitched battle completely routed the Pallavas, capturing as trophies their war-trumpet, their big drum called "roar of the sea," their great Siva banner, many elephants, and heaps of splendid rubies. The victor marched to Kánchi, which was at his mercy, and, refraining from destroying it, made donations of gold to the Rájasimhes'vara and other temples, a statement which is confirmed by an inscription at the former. His queen Loka-mahádevi afterwards caused a temple to be erected at Pattadkal (Bijapur district) to celebrate the victory.[4] This eventful defeat seems to have broken the power of the Pallavas, and the king, unable to face another Chalukya force, under the crown prince Kirtivarma, fled for refuge to a hill fort. The Ganga king S'ripurusha now retook Káḍuveṭṭi, which the Pallavas had recovered, and seized the Pallava umbrella, assuming at the same time the title of Permanaḍi, which he took from the lord of Kánchi.

The location of the next four names[5] is somewhat doubtful, but the Ráshṭrakáṭa kings about this time gained the ascendancy over the Chalukyas, and overcame the Gangas and Pallavas. We accordingly

[1] Beal's *Si-yu-ki*, II, 292. [2] *Ind. Ant.*, VIII, 23. [3] *So. Ind. Ins.*, I, 146.
[4] *Ind. Ant.*, VI, 85. [5] *ib.* VIII, 167 ; *Ep. Ind.*, III, 142.

find Nirupama claiming to have conquered the Pallavas in about 760. In 804, again, we find Govinda levying tribute from the ruler of Kánchi, called Dantiga. Also a Pallavádhirája acting as governor under the same, over the Nolambalige 1,000, the Nirgunda 300, &c. A Pallava king Nandivarma was moreover associated with Govinda in replacing on his throne the Ganga king Sivamára, in about 810. It was during this period, too, or in 788 according to Wilson, that the great religious discussion between the Buddhists and the Jains took place at Kánchi before the king Hemasitala, who was a Buddhist. The Jains were victorious, and the Buddhists, in lieu of being ground in oil-mills according to the conditions of the contest, were banished to Kandy in Ceylon, the king embracing the Jaina faith.

With Nolambádhirája, whose relation to the preceding is not known, begin the series of Pallava kings who more directly ruled in Mysore, and they are indiscriminately called Pallavádhirája and Nolambádhirája. Their chief city above the Ghats seems to have been Penjeru or Henjeru, now Hemavati, on the Sira border. There was also a Noḷamba-paṭṭaṇa, of which only the name remains, to the east of Chitaldroog, near Aymangala, properly Ayyapamangala. There is indeed a grant by Vira Noṇamba, made from Henjeru,[1] but as it professes to date from 444, and he is described as a Chalukya, in these respects it must be a forgery. The real genealogy of the Nolamba kings is given on a fine stone at Hemavati, confirmed by many other inscriptions in various parts.

They claim descent from the Is'vara-vams'a (Siva), through Trinayana, and Pallava the master of Kánchi. In his line was born Nolambádhirája, named Mangala, praised by the Karnáṭas, victor in war over the Kiráta king, and worshipper of Chaṇḍiká. His son was Simhapota, whose son was Cháru Ponnera, the Pallavádhirája whose daughter was married to the Ganga king Ráchamalla. Polal Chora Nolamba was her elder brother, the Nolambádhirája who married Jáyabbe, the younger sister of the Ganga king Nítimárga. Their son was Bíra Mahendra, who was contemporary with the Ganga king Ereyappa. Mahendra's queen was Divabbarasi or Divámbika, of the Kadamba family. Their son was Ayyapa Deva or Nanniga-nripa, who had two wives, Nágiyabbe and Heleyabbe. Two sons were born to him, perhaps one by each of these mothers,—Anniga or Bíra Nolamba, and Dilipayya or Iriva Nolamba, who reigned in turn. The latter ruled till 974, and had a son Nanni Nolamba, whose inscriptions date from 975 to 977. But the Ganga king Márasimha (963–974) is specially styled Nolambakulántaka, or death to the Nolamba race, and

[1] *Ind. Ant.*, VIII, 94; *Mys. Ins.*, 296.

it seems probable that they now lost their independence and were finally absorbed in the great wave of Chola conquest which overspread the east of the peninsula at the close of the tenth century.

Notices of Pallavas and Nolambas in a subordinate capacity as governors under the Cholas and Chálukyas continue to be met with long after: and the Chálukya king Somes'vara or A'havamalla (1040–1069) must have had a Pallava wife, as his younger son Jayasimha professes to be of both Chálukya and Pallava descent, and, among other titles, calls himself Víra Nolamba Pallava.

Gangas.—The Gangas were a line of kings who ruled over the greater part of the Mysore country, and of the Kávéri river basin (excepting the delta of Tanjore), from early in the Christian era till about 1004. They may be described as the principal Jaina dynasty of the South. The name Ganga is not an ordinary one, and how it came to be their designation, whence their kingdom was called Gangavāḍi and its subjects Gangaḍikáras, is not accounted for. It is impossible to avoid noticing that the only other occurrence of such a name in history is in the Greek accounts of Chandra Gupta, who is described as ruling over the Prasii and the Gangaridæ.[1] Ptolemy locates the Gangaridai in all the country about the mouths of the Ganges, with their capital at Gangé (not identified). They are also mentioned by Virgil, Valerius Flaccus and Curtius. Pliny, on the other hand, calls them Gangaridæ Calingæ.[2] That there was an important line of Ganga kings in Kalinga in the seventh and eighth centuries we know from inscriptions, and there was another of the same name in that region at a later period. The connection of the Kalinga Gangas with the Mysore Gangas, who were earlier, is admitted, but there is nothing to show that the name originated with the Gangaridæ Calingæ. The Hindu traditions, as might be expected, also refer the appellation to the sacred river Gangá or Ganges, but in stories (see below) which are apparently only invented from the name.

Of the origin of the Gangas the following account is extracted from inscriptions (of the eleventh century) at Purale, Humcha and Kallur Gudda. In the Ikshváku-vams'a arose Dhananjaya, who slew the king of Kanyákubja. His wife was Gándhári-devi, by whom he had a son Haris'chandra, born in Ayodhyá-pura. His wife was Rohini-devi, and their son was Bharata, whose wife, Vijaya-mahádevi, having bathed in

[1] The Bandaníkke record of the rule of Nanda, Gupta and Maurya kings over Kuntala has already been referred to (p. 289). Another inscription of the same period, at Kupatur, close by, says that Nágakhandaka (of which Bandaníkke was the chief city) was protected by the wise Chandra Gupta, an abode of the good usages of eminent Kshatriyas. [2] *See Ptolemy's Geog.* by McCrindle, *Ind. Ant.*, XIII, 365.

the Gangá at the time of conception, the son she bore was called Gangádatta (the gift of Gangá), and his posterity were the Gangas.[1] From him was descended Vishnu Gupta, who ruled in Ahichchhatrapura,[2] to whom Indra, pleased with his performance of the Aindra-dhvaja-pújá, presented his or an elephant. Vishnu Gupta, by his wife Prithuvimati, had two sons, Bhagadatta and S'rídatta. On Bhagadatta was bestowed the government of Kalinga, whence he became known as Kalinga Ganga: while to S'rídatta was given the ancestral kingdom, together with the elephant, which thenceforward became the crest of the Gangas. Subsequently a king named Priyabandhuvarma was born in that line, to whom Indra appeared and presented him with five royal tokens or ornaments, at the same time uttering a warning that if any king of the line should prove an apostate they would vanish. Giving to Vijayapura[3] the name of Ahichchhatra, Indra departed.

The Ganga line continuing to prosper, there was born in it Kampa, whose son was Padmanábha. Being in great distress on account of his childless condition, he supplicated the s'ásana devati of Padmaprabha and obtained two sons, whom he named Ráma and Lakshmana. Mahípála, the ruler of Ujjeni, now made a demand for the delivery to him of the five royal tokens presented by Indra. Padmanábha indignantly replied that they could not be given up, and would be of no use to another: also that if the demand were persisted in, it would be met by force. At the same time he held a consultation with his ministers, and as the result, resolved to quit the country. Taking his two sons, whose names he changed to Daḍiga and Mádhava, and accompanied by his daughter, his younger sister, and forty-eight chosen followers of Brahman descent, he set out for the south. On arriving at Perur, Daḍiga and Mádhava there met with the great muni Simhanandi, of the Kánúr[4]-gaṇa, and explained to him their circumstances. He took up their cause, gave them instruction, and obtained for them a boon from the goddess Padmávati, confirmed by the gift of a sword and the promise of a kingdom. Mádhava, with a shout, at once laid hold of the sword and struck with all his might at a stone pillar, when the pillar fell in two.[5] The muni recognized this as a good omen,

[1] The account given in the Kalinga Ganga inscriptions is that Turvasu, the son of Yayáti, being without sons, practised self-restraint and propitiated the river Gangá, the bestower of boons, by which means he obtained a son, the unconquerable Gángeya, whose descendants were victorious in the world as the Ganga line.—*Ind. Ant.*, XIII, 275.
[2] Either in Rohilkand or in Málwa.—*ib.* 361.

[3] Vijayapura appears as the place from which a Chalukya grant of the 5th century was issued, and was probably in Gujarat (*see Ind. Ant*, VII, 241).
[4] Or Kránur.

[5] What this pillar (*s'ilá stambha*) was it is difficult to understand, but in one place it is described as the chief obstacle in the way of his securing the throne.

made a crown from the petals of the karnikára blossom, and placed it on the heads of the brothers, giving them his peacock fan as a banner, and in due course, providing them with an army, invested them with all kingly powers. He also impressed upon them the following counsel:—If you fail in what you promise, if you dissent from the Jina s'ásana, if you take the wives of others, if you are addicted to spirits or flesh, if you associate with the base, if you give not to the needy, if you flee in battle;—your race will go to ruin.

Thus, with Nandagiri as their fort, Kuvalála as their city, the Ninety-six Thousand country as their kingdom, Victory as their companion in the battle-field, Jinendra as their god, the Jina mata as their faith,—Daḍiga and Mádhava ruled over the earth. The north, touching Madarkale; the east, Tonḍa-náḍ: the west, the ocean in the direction of Chera; the south, Kongu;—within these limits of the Gangavádi Ninety-six Thousand did the Gangas undertake the subjection of all enemies.

Most of this is no doubt legendary, but some truth may perhaps underlie the narrative, and with the arrival of Daḍiga and Mádhava at Perur we seem to be on solid ground. For Perur must be the place in Kadapa district still distinguished as Ganga-Perur; Simhanandi is known from literature,[1] and is expressly stated in various inscriptions to have helped to found the Ganga kingdom; moreover, the succession of kings as given from this point is in general accordance with numerous records found in all parts of Mysore. Several inscriptions, however, carry the foundation of the line back to Kanva, and the Gangas are described as of the Kánváyana gotra. A dynasty of Kanvas, we have already seen (p. 291), preceded the S'átaváhanas. Of the places mentioned in connection with the Ganga possessions, Nandagiri can only be Nandi-durga, Kuvalála is Kolar: but though the Gangas are called lords of Kuvalála-pura, we know that from an early period their capital was at Talavana-pura (Talakáḍ on the Kávéri). The place given as the northern limit of Gangaváḍi I have been unable to identify,[2] but the other limits are well-known places. Tonḍa-náḍ, a Forty-eight Thousand province, is Tonḍa-manḍala, the Madras country to the east of Mysore; the ocean for the western boundary seems to be a stretch of the imagination, as Gangaváḍi, so far as we know, did not extend below the Western Ghats; Chera corresponds with Cochin and Travancore; Kongu, with Salem and Coimbatore.

The following is a table of the Ganga kings of Mysore; the dates before the seventh century, though taken from inscriptions, are not certain:—

[1] Named by Indrabhúti in his *Samayabhúshana* (*see Ind. Ant.*, XII, 20).

[2] One or two names something like it are found in the north of the Kolar District.

Konguṇivarma (Mádhava)	103	S'rípurusha, Muttarasa, Permanaḍi, Prithuvi Kongaṇi	726–777
Kiriya Mádhava		S'ivamára (II), Saigoṭṭa	c. 780–814
Harivarma	247, 266	Vijayáditya	c. 814–869
Vishnu-gopa		Ráchamalla (I), Satyavákya	869–893
Taḍangála Mádhava	350	Nítimárga (I), ? Marula, Nanniya Ganga	893–915
Aviníta, Kongaṇi	425–478	Ereyappa, Mahendrántaka	921
Durviníta, Kongaṇi	478–513	Bútuga, Ganga Gángeya	930–963
Mushkara, Mokkara		Márasimha, Nolambakulántaka	963–974
S'rívikrama		Ráchamalla (II).	974–984
Bhúvikrama, S'rívallabha	679	Rakkasa Ganga, Govindara	984
S'ivamára (I), Nava Káma, Prithuvi Kongaṇi	679–713	Ganga Rája	996–1004
Prithuvipati, Prithuyas'as	726		

Konguṇi-varma was the first king, and this is a special title of all the Ganga kings to the end.[1] To him is invariably ascribed the feat of cutting through the stone pillar with a single stroke of his sword: he is therefore the Mádhava of the narrative before given, and in one place is described as but a boy at that time. The succession of kings, on the other hand, was through Daḍiga, of whom it is said that with the Kaurava army he stopped the army of the Matsya king. Supposing the founders of the Ganga dynasty to have come from Central India, and matured their plans at Perur, in Kadapa district, for the acquisition of Kolar and the midland and southern parts of Mysore, they would soon encounter the opposition of the Mahávali or Báṇa kings, whose western boundary was probably the Pálár, which is close to Kolar on the east. We accordingly find Konguṇi-varma described as consecrated to conquer the Báṇa manḍala, and as a wild-fire in consuming the stubble of the forest called Báṇa. From the east the Ganga princes marched to the west, and are represented as engaged in leading an expedition to the Konkan or western coast, when they came to Manḍali, near Shimoga, where, by the advice of Simhanandi, they established a chaityálaya. Probably there was a considerable Jain element in the population of Mysore at the time, over whom Simhanandi exerted his influence to gain their acceptance of the Ganga rule.

Daḍiga's son, Kiriya Mádhava, or the younger Mádhava, succeeded to the throne.[2] He is described as inclined to learning and skilled in polity. He wrote a commentary on the *dattaka sútra* or law of adoption. His son was Harivarma, who made use of elephants in war, and established the capital at Talakáḍ. Previous to this, according to an old chronicle, the capital was at Skandapura, which Lassen locates at

[1] Konguṇi is also written Kongaṇi, Konguḷi, and Kongiṇi. For the date assigned to him *see* my *Ep. Carn.*, Mysore I, Nj. 110.

[2] Daḍiga's brother would therefore be properly distinguished as Hiriya Mádhava.

Gajalhatti, near Satyamangalam, on the old ghat road from Mysore to Trichinopoly. But no reference to such a place is contained in the inscriptions. Two grants of the time of Harivarma have been found, both open to doubt. One[1] records a gift at Orekod, in the Maisur-nád Seventy, to a Brahman for overcoming in discussion a Bauddha who had affixed a challenge to the gate of the palace at Talakad, boasting of his learning, and maintaining the doctrine that annihilation was the highest happiness. The other[2] is a grant in some neighbouring part for an act of bravery in the battle of Henjeru. Harivarma's son Vishnugopa is described as devoted to the worship of gurus, cows and Brahmans. His change of faith caused the five royal tokens given by Indra to vanish, as foretold in the original warning. He must have lived to a great age, as he is said to have retained his mental energy unimpaired to the end of life. His son was Taḍangála Mádhava, whose arms were grown stout and hard with athletic exercises. He married a sister of the Kadamba king Krishnavarma, and is described as the reviver of donations for long-ceased festivals of the gods and Brahman endowments. A grant of his in an extraordinary jumble of alphabets[3] also records a gift for bravery at Henjeru. This, and the similar grant above, point to encounters with the Pallavas.

Taḍangála Mádhava's son, by the Kadamba princess, was Avinita, who was crowned while an infant in his mother's lap. He married the daughter of Skandavarma, Rája of Punnáḍ, who chose him, though betrothed by her father to another from her birth on the advice of his guru. Of him it is related that on coming to the Kávéri he heard a voice say *s'ata-jívi* (a prediction that he would live for a hundred years), on which, to the consternation of his attendants, he plunged into the river and crossed over in safety, though it was in full flood, thus acquiring the name of Churchuváyda Ganga. Both he and his son are said to have been like Manu in maintaining the castes and religious orders of the south. Two grants of his reign have been found, one of the twenty-ninth year,[4] making a grant to a Brahman, and one[5] recording a gift to Jainas in the Punnáḍ Ten Thousand, by the minister of Akálavarsha (a Ráshṭrakáṭa king). The Punnáḍ Ten Thousand formed the southern portion of Mysore, and seems to correspond with the Padi-nád or Ten náḍ country of later inscriptions.[6] Also with the

[1] *Ind. Ant.*, VIII, 212. [2] *Ep. Carn.*, Mysore I, Nj. 122.
[3] *Ind. Ant.*, VII, 172. [4] *ib.* V, 136. [5] *ib.* I, 363 ; *Coorg Ins.* No. 1.
[6] A grant of the Punnáḍ Rájas, the date of which cannot be determined, has been found, from which their capital seems to have been Kitthipura. It gives the following succession of kings :—Ráshṭravarma ; his son Nágadatta ; his son Bhujaga, who married the daughter of Singavarma ; their son Skandavarma ; his son the Punnáṭa Rája Ravidatta.—*Ind. Ant.*, XII, 13 ; XVIII, 366.

Pounnuta of Ptolemy, where beryl was found.[1] Aviníta's son was Durviníta. He had for his preceptor the author of the S'abdávatára, that is, the celebrated Jaina grammarian Pújyapáda. He thus acquired a literary taste which led him to write a commentary on part of the Kirátárjuníya, a well-known poem by Bháravi. He is probably, as the name is a very uncommon one, the Durviníta named by Nripatunga among the early Kannaḍa authors. He seems to have extended the Ganga dominion to the south and east, for he is said to have waged sanguinary wars for the possession of Andari, A'lattúr (perhaps the one in Coimbatore district), Porulare, Pennagara (in Salem district), and other places, and is described as ruler over the whole of Pánnáḍ and Punnáḍ, as if he had annexed them. He is also said to have wrested Káḍuveṭṭi (Karveṭi-nagara, North Arcot district) from Jayasimha, the king of Kánchi, and made the son of his own daughter the governor. Two grants of his reign have been found, one of the third year[2] and the other of the thirty-fifth,[3] both recording gifts to Brahmans.

His son was Mushkara or Mokkara, who married the daughter of the Sindhu Rája. His son was S'ríkrama, who had two sons, Bhúvikrama and S'ivamára. Bhúvikrama, in a great battle at Vilanda, defeated the Pallava king Narasimhapotavarma II., trodden to death in the charge of elephants, and subdued the whole of the Pallava dominions, acquiring the title of S'ríkallabha. According to the old chronicle he and his brother made their residence at Mukunda, apparently the present Mankunda, near Channapatna. The younger brother, S'ivamára or Nava Káma, had under his guardianship the two grandsons of the Pallava king, no doubt the one above mentioned. Their father, therefore, may have been taken prisoner and died in captivity. In a grant made in his thirty-fourth year,[4] this king signs himself *s'ishṭa-priyah*, beloved of the good.

Most of the Ganga grants omit mention of his son and pass on to his grandson. From the only grant that gives an account of him,[5] the reason appears to be that the son was engaged in distant expeditions in which he was unfortunate and lost his life, or there may have been a split in the family. He is called Prithuvipati and Prithuyas'as, but these can hardly be his names. He gave protection to certain chiefs, one of whom was a refugee from Amoghavarsha. He cut a piece of bone out of his body from a wound received in the battle of Vaimbalguli and sent it to the waters of the Ganges. He defeated the

[1] Col. Yule's Map of Ancient India (Dr. Smith's *Atlas of Ancient Geog.*). Padiyur in Coimbatore district produced beryl (*see Ind. Ant.*, V, 237).

[2] *Ind. Ant.*, VII, 174.

[3] *ib.* V, 138.

[4] *Ep. Carn.*, Mysore I, Md. 113.

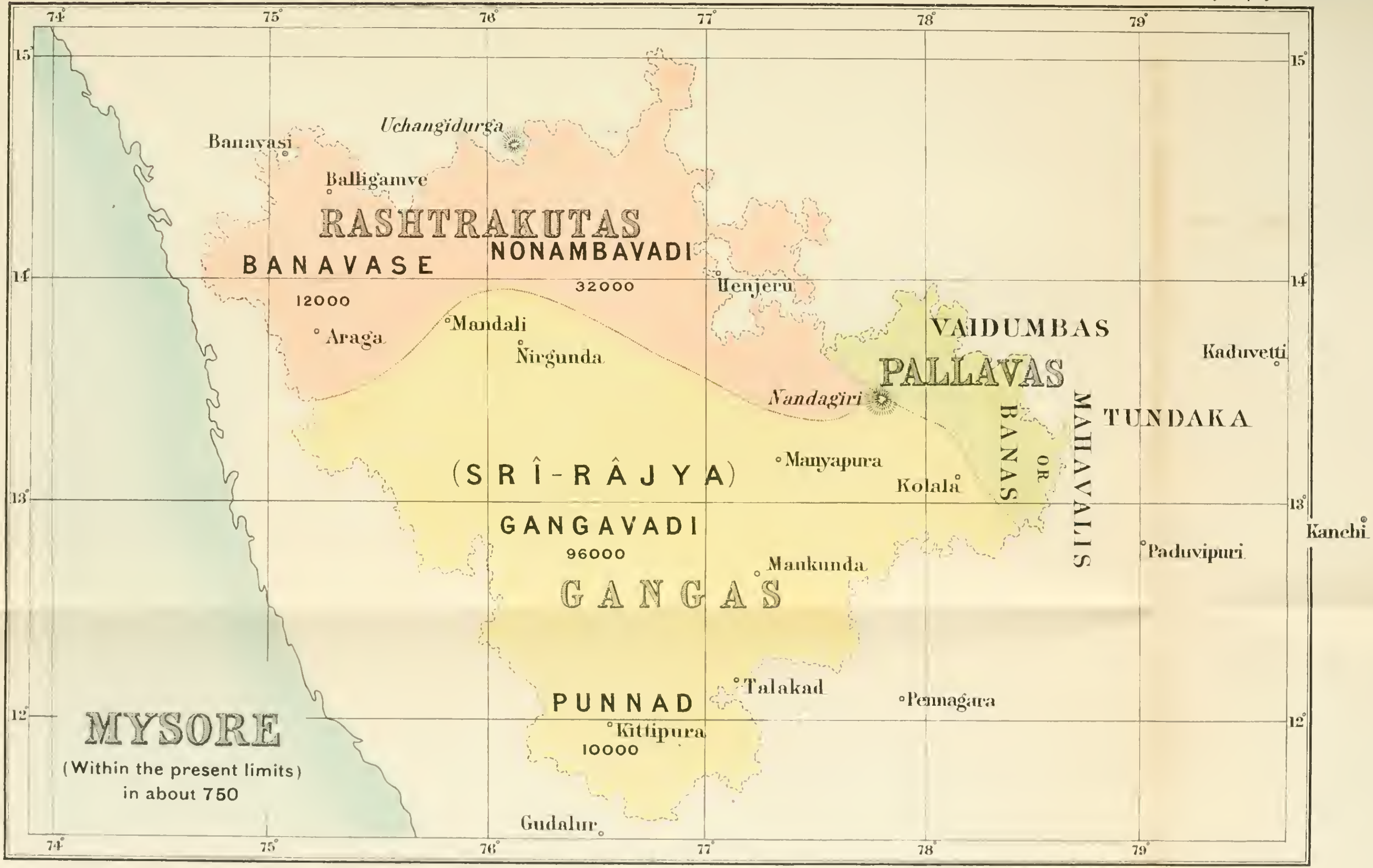
[5] *Salem Manual*, II, 369.

Pándya king Varaguna in a battle at S'rí Purambiyam, or Tiru Purambiyam (near Kumbhakonam), but lost his life in saving a friend. He appears to have had a son Márasimha, of whom we hear no more.

S'rípurusha, whose name was Muttarasa, was the grandson (or perhaps great grandson) of Sívamára, and had a long and prosperous reign. His kingdom was called the S'rí-rájya. Numerous grants of his time have been found, both on stone slabs and on copper plates, ranging from the first to the fiftieth year of his reign.[1] He seems at some time to have made Mányapura (Manne in Nelamangala taluq) the royal residence. He is stated to have again conquered Káduveṭṭi, which had been recovered by the Pallavas, at the same time capturing the Pallava umbrella and assuming the title of Permanaḍi, which he took away from the king of Kánchi. This title is used of all subsequent Ganga kings, sometimes alone, without any distinguishing name. He also reinstated the Bána kingdom by placing Hastimalla on the throne. He is said, moreover, to have written a work on elephants called Gajas'ástra. His sons Sivamára and Duggamára appear as governors under him, also one named Lokáditya, apparently the youngest.

He was succeeded by his son S'ivamára, surnamed Saigoṭṭa, and the latter had a son, Márasimha, who made a grant in 797 as yuva-rája, but is not again heard of. S'ivamára is said to have been the author of Gajáshtaka, a treatise on elephants, in which he improved upon his father's system. Serious reverses befell the Ganga kingdom in this reign. The Ráshṭrakúṭas had gained a great accession of power, and Nirupama or Dhárávarsha is said to have defeated and imprisoned the impetuous Ganga, who had never been conquered before. The next king, Govinda or Prabhútavarsha, on coming to the throne in about 784, released Ganga from his long and painful captivity, but had to confine him again on account of his hostility.[2] As he is represented as having defeated the combined royal army, commanded by Ráshṭrakúṭa, Chalukya and Haihaya chiefs, at Murugundur (perhaps Mudugundur in Mandya taluq), this attack may have led to his being again seized. During the interregnum the Ráshṭrakúṭas appointed their own viceroys to govern the Ganga territories. In 802 Dhárávarsha's son Kambha or Ranávaloka was the viceroy, and there are three inscriptions of his time.[3] In 813 we find Cháki Rája in that office.[4] Eventually S'ivamára either made his peace with Govinda or, as seems more likely, the latter was in need of allies, for that monarch, assisted by the Pallava king Nandivarma, replaced him on the throne, the two binding the diadem on his brow with their own hands. A long war now took place between the

[1] *Mys. Ins.* and *Ep. Carn.* [2] *Ind. Ant.*, VI, 69 ; XI, 161.
[3] *Ins. at Sr. Bel.*, No. 24 : the others unpublished. [4] *Ind. Ant.*, XII, 18.



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Eastern Chalukyas and the allied Gangas and Raṭṭas, in which 108 battles were fought in twelve years. S'ivamára's successor on the throne was apparently his brother Vijayáditya.

With the accession ofRáchamalla Satyavákya the Gangas seem to have taken a fresh start in power, and these names form titles of all the subsequent kings. He is said to have recovered from the Ráshṭrakúṭas the whole of the territory which they had seized and held too long. His yuva-rája in 870 was Bútarasa, and he had a son Rana Vikramayya, who may be the same. But the son that was his successor is called Nitimárga, who had a prosperous reign, and there are numerous inscriptions of his time. His sister was married to Nolambádhirája, who was ruling under him. His son Ereyappa was apparently associated with him in the government towards the close of his life. An interesting sculptured bas-relief of his death-bed scene has been discovered.[1] Ereyappa is called Mahendrántaka, or death to Mahendra, the Nolamba king.

With Bútuga considerable changes occurred in the Ganga dominions. Ereyappa's eldest son Ráchamalla was the proper heir to the throne. But Bútuga, another son, perhaps by a different mother, resolved to possess himself of the crown, and defeated and slew Ráchamalla. The Ráshṭrakúṭa king Baddega or Amoghavarsha gave him his daughter in marriage, and he appears to have secured the kingdom for his brother-in-law Krishna or Kannara, though on Baddega's death it had been seized by Lalliya. Kannara was soon after engaged in a war with the Chola king Rájáditya, when Bútuga by some treachery killed the latter at a place called Takkola, following it up by laying siege to the Chola capital Tanjápuri (Tanjore) and burning Nálkote. For this important service Kannara made over to him the Banavase Twelve Thousand (Shimoga and North Kanara districts), in addition to his wife's dowry, the Belvola Three Hundred, the Purigere Three Hundred, the Kisukád Seventy, and the Báginád Seventy (all in Dharwar and neighbouring districts).[2] Bútuga also subdued the Seven Málavas, and putting up boundary stones, gave the country the name of Ganga Málava. His elder sister Pámbabbe, widow of Dorapayya, died in 971, after leading an ascetic life for thirty years. His son Marula Deva is said to have married a daughter of Kannara. But his successor on the throne was his son Márasimha, called Nolambakulántaka, from his having slain all the Nolambas. By direction of Kannara he made an expedition against Gurjjara or Gujarat, and is said to have been a terror to the Chalukya prince Rájáditya. From several in-

[1] *Ep. Carn.*, Mysore I, TN. 91.   [2] *Ibid.* III, Ind. 41: *Ep. Ind.*, III, 175.

scriptions towards the end of this reign it appears that the Gangas had then become feudatories of the Ráshtrakútas.

But the latter were now finally overcome by the Chálukyas, and Márasimha's sonRáchamalla, who succeeded, was independent. This king's minister and general was Chámunda Ráya, who caused the colossal image of Gomata to be erected at S'ravana Belgola. The king's younger brother Rakkasa was a governor in Coorg, and finally succeeded to the throne. With Ganga Rája we come to the end of the independent Ganga rule. The Cholas, advancing in overwhelming force, invaded the Ganga territories, under the command of Rajendra Chola, son of the reigning king Rájarája, and in about 1004 captured Talakáḍ and overran all the south and east of Mysore. The Gangas, driven from their kingdom, took refuge with the Chálukyas and with the Hoysalas, who were destined to succeed to their dominion in Mysore, attaining to positions of the highest honour under both.

But the principal revival of their power as independent rulers was in Orissa, or rather in Ganjam and Vizagapatam districts, in alliance with the Cholas. We have already had occasion to mention the Kalinga Gangas. Several of their earlier inscriptions have been found,[1] mostly issued from Kalinga-nagara (Ganjam district), and dated in the years of the Ganga family (*Gángeya-vams'a-samvatsara*), an era not yet determined. The kings profess to be worshippers of the god Gokarna-svámi on the Mahendra mountain (in Ganjam district), and rulers over the whole of Kalinga. Arranging the grants conjecturally, guided by the years and relationships given, we obtain the following list :—

Anantavarma		Anantavarma	
Devendravarma	51	Devendravarma	254
Satyavarma	51	Rájendravarma	
Indravarma	91, 128, 146	Anantavarma	304
Rájendravarma		Vajrahasta	
Devendravarma			

On the other hand a very full and circumstantial genealogy of Kalinga Gangas is given in a later grant[2] of 1118, in which quite different names appear (except Vajrahasta), but of course it is possible they may be the same kings under other titles. The line is here traced from the god Vishnu through Yayáti and Turvasu, who is said to have obtained from the Gangá the son Gángeya who was the progenitor of the Ganga kings (*see* above, p. 309). A list of sixteen kings follows, whose names seem purely mythical, down to Koláhala, who is said to

[1] *Ind. Ant.*, XIII, XIV, XVIII; *Ep. Ind.*, III, 17, 220. The grant of Devendra, son of Rájendra, is in my possession, not yet published. The year 128 has been supposed to be about 658 A.D.; 254 about 774 (*I. A.*, XIII, 274). [2] *Ind. Ant.*, XVIII, 165.

have built the city of Koláhala (Kolar) in the great Gangavádi country. After his son Virochana and eighty more kings, not named and probably imaginary, had held Koláhala, there arose in that line Vírasimha, who had five sons, Kámárṇava, Dánárṇava, Guṇárṇava, Márasimha, and Vajrahasta. The first of these, giving the kingdom to his maternal uncle, set out with his brothers to conquer the earth, and coming to the Mahendra mountain, worshipped Gokarnasvámi, and obtained the crest of a bull and the symbols of sovereignty. He and his brothers subdued Baláditya, who had grown sick of war, and took possession of the (three) Kalingas. Giving Ambavádi to the third brother, Sódá or Sedá to the fourth, and Kanṭaka to the fifth, Kámárṇava, with his capital at Jantavura, ruled over the Kalingas, nominating his brother Dánárnava as his successor. After these two, fifteen kings ruled, ending with Vajrahasta V, who married Vinaya-mahádevi of the Vaidumba family. His son was Rájarája, who is said to have defeated the Dramilas, wedded Rájasundari, daughter of the Chola king Rájendra Chola, and saved the aged Vijayáditya from falling into the power of the Cholas, by upholding his authority in the west. Rájarája's son Anantavarma or Chola-Ganga was anointed king of Trikalinga in 1078, and re-instated the fallen lord of Utkala (Orissa) in the east, and the sinking lord of Vengi in the west. Grants of his have been found dating in 1081, 1118, and 1135.[1]

The total of the years assigned to the reigns of these kings comes to about 350, which, deducted from 1078, the date of Chola-Ganga's accession, brings us to 728, and this is near about the period estimated for the later of the early kings previously mentioned. It is also the period in the annals of the Mysore Gangas where we find a break in the list, filled up by an alleged Prithuvipati, a word merely meaning king, who had a son Márasimha, of whom nothing more is heard. Putting these coincidences together, we are tempted to suppose that Kámárnava, with his brother Márasimha and the others, who gave up their kingdom in Mysore to a relative and went forth from Kolar to found another in Kalinga, where a branch of the family had already been ruling for centuries, may possibly have been sons of the missing king who died in battle.

Two inscriptions in Chiknáyakanhalli taluq refer to Chola-Ganga as the Oḍu-ráyíndra, or great king of Orissa, and state that he was born in the Hejjáji Twelve of the Kádanur Seventy (both in Dod Ballapur taluq). The Ganga kings of Orissa or Kalinga, also called Gajapatis or elephant lords, beginning with Chola-Ganga, held the sovereignty of that country down to 1534, soon after which it fell a prey to the Muhammadans. Of these kings Ananga Bhima Deva (1175–1202) was a great

[1] *Loc. cit.*

ruler, and made a survey of his whole kingdom, measuring it with reeds. He also built the present temple of Jagannáth. Another king of interest was Purushottama Deva (1479–1504). He sought in marriage the daughter of the king of Kánchi, famed for her beauty. But on the ground of his performing the office of sweeper to Jagannáth his suit was rejected. He therefore attacked Kánchi, and was at first repulsed. At length he captured it, and took the princess prisoner, whom he vowed in revenge should be married to a sweeper. The minister charged with the execution of this order kept the girl in concealment until the festival of Jagannáth, at which the king was accustomed to sweep the ground before the god; and while he was engaged in that act placed her beside him, and they were married. The reign of Pratápa Rudra (1504–1532) is remarkable for the reformation of the Vaishnava religion by the preaching of Chaitanya, whose views the king finally adopted; and Buddhism, to which he had previously inclined, was banished the country. Pratápa Rudra is said to have extended his conquests southwards as far as Cape Comorin, and his name occurs in many local traditions in the east of Mysore. We also find that his son Vírabhadra was invested with the government of Male Bennur (Davangere taluq) by Krishna Ráya of Vijayanagar.

Certain other references to kings of the same connection may here be pointed out. The existence of constant intercourse between Kalinga and Ceylon from the earliest times is well known, and we find a Chola-Ganga from Kalinga ruling in Ceylon in 1196.[1] There was also a line of Chola-Gangas in the east of Mysore in the thirteenth century. But it is not a little singular that we find a Karnátaka dynasty set up in distant Nepal, apparently in 1097, which may have been of Ganga origin. The founder, Nánya Deva (perhaps Nanniya Deva), came from the south. He was succeeded by Ganga Deva and four others, the last of whom removed the capital to Kátmándu, where the line came to an end.[2]

Not yet, however, have we done with the Gangas, for at about the time that their Orissa sovereignty came to an end, or the first part of the sixteenth century, a Ganga Rája returned to the scene of their former dominion, and established a principality at S'ivasamudram, the island at the Falls of the Kávéri, not far from Talakáḍ. Ganga Rája, after a prosperous reign, was succeeded by his son Nandi Rája, who, to atone for some ceremonial offence, leaped into the cataract at Gagana Chukki on horseback with his wife. His son, Ganga Rája II, enlarged the city greatly, and lived with much splendour. His two daughters were married, one to the chief of Kilimale, near Satyagála, the other to the chief of Nagarakere, near Maddur. These marriages were very

[1] Rhys Davids, *Numismata Orientalia.* [2] *See Ins. from Nepal,* by Dr. G. Bühler.

unhappy, for the pride of the ladies gave their husbands constant disgust, and they were continually upbraided for not living in equal splendour with their father-in-law. They therefore united to attack Sivasamudra and humble Ganga Rája. The siege had lasted twelve years without their having been able to penetrate to the island, when they found means to corrupt the Dalaváyi, or minister, of Ganga Rája. This traitor removed the guards from the only ford, and thus permitted the enemy to surprise the place, while he endeavoured to engage his master's attention at a game of chess. The shouts of the soldiery at length reaching their ears, the prince started up from the game. The Dalaváyi, who wished him to fall alive into the hands of his sons-in-law, endeavoured to persuade him that the noise arose merely from children at play, but the Rája, having drawn his sword, first killed all his women and children, and then, rushing into the midst of his enemies, fought until he procured an honourable death. The sons-in-law, on seeing this, were struck with horror, and immediately threw themselves into the cataract at Gagana Chukki; and their example was followed by their wives, whose arrogance had been the cause of such disasters.

Jagadeva Ráyal of Channapatna, and S'ríranga Rája of Talakáḍ, the two most powerful of the neighbouring Pálégars, then came and removed all the people and wealth of the place.

Chalukyas.—This powerful line of kings was in the ascendant throughout the north-west of Mysore, and the Bombay and Haidarabad districts beyond, from the fifth to the eighth century, and from the latter part of the tenth to that of the twelfth. Their first appearance south of the Nerbudda was in the fourth century, previous to which they are said to have had fifty-nine predecessors on the throne of Ayodhyá, but of these nothing is known. On their entering the Dekhan they overcame the Ráshṭrakúṭas, but the Pallavas effectually opposed them and the invader was slain, as previously related. His successor, however, defeated the Pallavas and then formed an alliance with them, confirmed by his marriage with a Pallava princess. In the sixth century, Pulikes'i, whose chief city was apparently Indukánta (supposed to be Ajantá or some neighbouring place), wrested Vátápi (the modern Bádámi in Bijapur district) from the Pallavas and made it his capital. His son Kírtivarma subdued the Mauryas (descendants of the ancient Mauryas of Páṭaliputra), ruling in the Konkan, and the Kadambas of Banavasi. Another son, Mangales'a, conquered the Kalachuryas. The A'lupas or A'luvas, who ruled in Tulava or South Kanara, were also at some time overcome,[1] and the next king, Pulikes'i II, came into contact with the Gangas, possibly in the time of Mush-

[1] There are inscriptions of theirs at Kig in the Western Ghats in Koppa taluq. and at Mangalore.

kara, as there appears to have been a Jain temple erected in his name at Puligere (Lakshmes'vara in Dharwar district). In about 617 the Chalukyas separated into two branches, of which the Eastern Chalukyas made Vengi (near Ellore in the Godávari district), taken from the Pallavas, and subsequently Rájamahendri, their capital, while the Western Chalukyas, with whom Mysore is chiefly concerned, continued to rule from Vátápi and eventually from Kalyána (in the Nizam's Dominions, about 100 miles west by north of Haidarabad).

The Chalukyas were of the Soma-vams'a or lunar line, and the Mánavya-gotra. They claim to be sons of Háriti, nourished by the seven mothers. The boar was the principal emblem on their signet, obtained from Bhagaván Náráyaṇa (Vishnu), but their insignia included a peacock fan, an *ankus'a* or elephant goad, a golden sceptre, and other symbols. The Western Chalukyas are styled the *Satyás'raya kula*, from the name of the first king of this branch. The titles on their inscriptions, which are very numerous in Mysore, especially in the north-west, are nearly invariably as follows—*Samastabhuvanás'raya*, *Srí-prithví-vallabha*, *Mahárájádhirája*, *Parames'vara*, *Parama-bhaṭṭáraka*, *Satyás'raya-kula-tilaka*, *Chálukyábharaṇa*.

Although the above details are very circumstantial, the account of the origin of the Chalukyas is evidently puránic,[1] and the real source from which they sprang is far from clear. The name Chalukya bears a suggestive resemblance to the Greek name Seleukeia, and if the Pallavas were really of Parthian connection, as their name would imply, we have a plausible explanation of the inveterate hatred which inscriptions admit to have existed between the two, and their prolonged struggles may have been but a sequel of the contests between Seleucidæ and Arsacidæ on the banks of the Tigris and Euphrates.

The succession of the Early and Western Chalukya kings, during the period of their first ascendancy, is as follows[2] :—

Jayasimha, ? Vijayáditya		Chandráditya,	655
Rájasimha, Raṇarága, ? Vishnuvardhana		Vikramáditya I, Raṇarasika	655–680
Pulikes'i I, Satyás'raya, Raṇavikrama	550	Vinayáditya, Rájás'raya	680–696
Kírtivarma I, Raṇaparákrama	566–597	Vijayáditya, Samastabhuvanás'raya	696–733
Mangales'a, Raṇavikránta	597–608	Vikramáditya II	733–746
Pulikes'i II, Satyás'raya	609–642	Kírtivarma II, Nripasimha	746–757
A'dityavarma			

Jayasimha is said to have defeated and destroyed Indra, the son of Krishna, the Ráshṭrakúṭa or Raṭṭa king. He himself, however, was

[1] They are stated to have miraculously sprung from the moisture or water in the hollowed palm (*chuluka*, *chulaka*) of Háriti's hand. According to another account from the libation to the gods poured from his goblet (*chulka*, *chuluka*, *chaluka*), by Háriti. These stories seem evidently invented from the name.

[2] *Cf. Ep. Ind.*, III, 2.

slain in an encounter with Trilochana Pallava. His queen, then pregnant, fled and took refuge with a Brahman called Vishnu Somayáji, in whose house she gave birth to Rájasimha. On growing up to man's estate he renewed the contest with the Pallavas, in which he was successful, and married a princess of that race. Pulikes'i was the most powerful of the early kings and performed the horse sacrifice. His eldest son, Kírtivarma I, subdued the Nalas, of whom we know no more, the Mauryas and the Kadambas. Mangales'a, his younger brother, conquered the island called Revati-dvipa, and the Mátangas: also the Kalachurya king Buddha, son of Sankaragana, the spoils taken from whom he gave to the temple of Makutes'vara, near Bádámi. He attempted to establish his own son in the succession, but Satyás'raya or Pulikes'i II, the elder son of Kírtivarma, obtained the throne.

Pulikes'i's younger brother Vishnuvardhana, surnamed Kubja, on the capture of Vengi from the Pallavas, there founded the separate line of Eastern Chalukyas, who remained in power in the Vengi and Rájamahendri country till the eleventh century, when they were absorbed into the Chola family.[1]

Satyás'raya or Pulikes'i II, the first of the Western Chalukya line, was a great conqueror and subdued all the neighbouring nations. His most notable victory was over Harshavardhana or S'íláditya, king of Kanyákubja or Kanoj, the most powerful monarch in northern India. By this conquest he obtained the title of Parames'vara or supreme lord,

[1] For convenience of further reference the list of Eastern Chalukyas is here inserted, as given by Dr. Fleet (*Ind. Ant.*, XX, 283), who has gone very fully into details in the preceding articles :—

Kubja Vishnuvardhana I 615–633
Jayasimha –663
Indra Bhattáraka (seven days) 663
Vishnuvardhana II –672
Mangi Yuvarája –696
Jayasimha II –709
Kokkili (six months) 709
Vishnuvardhana III –746
Vijayáditya Bhattáraka –764
Vishnuvardhana IV –799
Vijayáditya II, Narendramrigarája –843
Kali Vishnuvardhana V –844
Gunaka Vijayáditya III –888
Chálukya Bhíma I –918
Kollabhiganda Vijayáditya IV (six months) m. Melámbá 918
Amma I, Vishnuvardhana VI, Rája Mahendra 925
Beta Vijayáditya V (fifteen days) 925
Tádapa (one month) 925
Vikramáditya II (eleven months) –926
Bhíma II (eight months) 927
Yuddhamalla –934
Chálukya Bhíma III, Vishnuvardhana VII, Gunda Mahendra, m. Lokamahádevi –945
Amma II, Vijayáditya VI, Rája Mahendra –970
Dánárnava –973

(Interregnum of thirty years.)

Saktivarma 1003–1015
Vimaláditya, m. Kundava-mahádevi of the Chola family –1022

ever after borne by the Chalukyas. The Chinese pilgrim Hiuen Tsiang has given interesting accounts of both Harshavardhana and Pulikes'i, and of their times. Of Pulikes'i's kingdom he says:—"The disposition of the people is honest and simple; they are tall of stature, and of a stern vindictive character. To their benefactors they are grateful, to their enemies relentless. If they are insulted they will risk their life to avenge themselves. If they are asked to help one in distress they will forget themselves in their haste to render assistance. If they are going to seek revenge they first give their enemy warning; then, each being armed, they attack each other with spears. When one turns to flee the other pursues him, but they do not kill a man who is down (or submits). If a general loses a battle they do not inflict punishment but present him with woman's clothes, and so he is driven to seek death for himself. The country provides for a band of champions to the number of several hundreds. Each time they are about to engage in conflict they intoxicate themselves with wine, and then one man with lance in hand will meet ten thousand and challenge them in fight. If one of these champions meets a man and kills him, the laws of the country do not punish him. Every time they go forth they beat drums before them. Moreover they inebriate many hundred heads of elephants, and taking them out to fight, they themselves first drink their wine, and then, rushing forward in mass, they trample everything down, so that no enemy can stand before them. The king, in consequence of his possessing these men and elephants, treats his neighbours with contempt. He is of the Kshattriya caste and his name is Pulakes'i (Pu-lo-ki-she). His plans and undertakings are widespread, and his beneficent actions are felt over a great distance. His subjects obey him with perfect submission. At the present time S'íláditya Mahárája has conquered the nations from east to west and carried his arms to remote districts, but the people of this country alone have not submitted to him. He has gathered troops from the five Indies, and summoned the best leaders from all countries, and himself gone at the head of his army to punish and subdue this people, but he has not yet conquered their troops. So much for their habits. The men are fond of learning[1]." . . . .

The city he calls Konkanapura, which he visited, may probably be Kopana (now Kopal) in the extreme south-west of the Nizam's dominions, or Kokanur close to it. Of its people he says:—"They love learning, and esteem virtue and talent." Arab annals, moreover, as pointed out by Dr. Fergusson,[2] state that Pulikes'i exchanged presents and letters with Khosru II of Persia, and the Persian

[1] Beal's *Si-yu-ki*, II, 256. [2] *J. R. A. S.*, XI, 155.

embassy is supposed to be represented in one of the paintings in the Ajanta caves. The exact date of the end of his reign is not known, and the history is not very clear until the accession of Vikramáditya. Before him there were his brothers A'dityavarma and Chandráditya. One inscription of the former is known,[1] but the latter is represented only by grants made by his queen, Vijaya-mahádevi or Vijaya-bhaṭṭáriká.[2] She may therefore have been a widow at the time and regent for a son who did not survive. I have also found a grant in Goribidnur taluq by Ambera, a son or daughter of Satyás'raya.[3] It seems certain that after the death of Pulikes'i II. the Pallavas attacked and inflicted severe losses on the Chalukyas, driving them out of some of their recently acquired possessions in the south.

Vikramáditya restored the power of the Chalukyas. Riding to battle on his splendid charger Chitrakantha, he was victorious over Pándya, Chóla, Kerala, and Kalabhra (perhaps the Kalabhuryas or Kalachuryas), all of whom may have aided the Pallavas in their late hostilities. But his greatest achievement was the capture of Kánchi and forcing the Pallava king, "who had never bowed to any other man," to kiss his feet with his crown. Vinayáditya, his son, captured and destroyed the army of Trairájya Pallava, the king of Kánchi, was served by the Pallava, Kalabhra, Kerala, Haihaya, Vila, Málava, Chola and Pándya kings, as well as by the A'luvas and Gangas; and levying tribute from the rulers of Kavera, Párasika, Simhala (Ceylon) and other islands, churned the king of all the north and seized the Páli dhvaja.[4] His son Vijayáditya completed the conquests of the two preceding reigns, both in the south and the north, and in addition to the Páli dhvaja gained the Gangá and Yamuná dhvajas, which had been possessions of the Guptas. His son Vikramáditya II gained an important victory in the Tundáka province (Tonda-mandala) over the Pallava king Nandipotavarma, whom he put to flight and, capturing all the royal insignia, made a triumphal entry into Kánchi, which he refrained from plundering, but presented gifts of gold to the Rájasimhes'vara and other temples. He then, after withering up Pándya, Chóla, Kerala, Kalabhra and other kings, set up a pillar of victory on the shore of the southern ocean. His queen, Lokamahádevi, of the Haihaya family, caused a temple at Pattadkal to be erected in commemoration of his having three times defeated the Pallavas. His son Kírtivarma II, while yet yuva-rája under his father, obtained permission to make another expedition against the Pallava king, whom he

[1] *Ind. Ant.*, XI, 66. [2] *ib.* VII, 163; VIII, 273. [3] *ib.* VIII, 89; IX, 304.

[4] An arrangement of flags which seems to have been a recognized Jaina symbol of supreme sovereignty (*see Ind. Ant.*, XIV, 104).

drove to take refuge in a hill fort, and dispersing his army, plundered his treasures.

While the Western Chalukyas had thus been engaged at a distance, in the direction of Kánchi, in destroying the power of the Pallavas, their other old enemies, the Ráshṭrakúṭas, nearer home, had been watching for the opportunity to free themselves. In this they were successful, under the kings Dantidurga and Krishna. The Western Chalukyas for about two centuries from this time disappear from view. Kings of their line named Kírtivarma, Tailapa, Bhíma and Ayyana, who is said to have married a daughter of the Ráshṭrakúṭa king Krishna, are named as ruling in succession, but the accounts are doubtful.

Rashtrakutas.—Meanwhile our attention must be directed to the power which superseded them and which played an important part in Mysore during their eclipse, as testified by inscriptions throughout the northern and midland parts.[1] This was the Ráshṭrakúṭas or Raṭṭas, connected perhaps with the Rájput Ráṭhors, and supposed to be represented by the modern Reḍḍis. They may have existed in the Dekhan from very early times. Their territory at the period of which we are writing is often referred to as Raṭṭaváḍi, and their capital, at first Mayúrakhanḍi (Morkhand in Nasik district) was, early in the ninth century, at Mányakheta (Málkhed in the Nizam's Dominions, about ninety miles west by south of Haidarabad). The earliest decided mention of them describes Indra, the son of Krishna, as overcome by the early Chalukya king, Jayasimha, and coins supposed to belong to this Krishna have been found on the Bombay side. Then we have a Govinda repulsed by Pulikes'i I. But the connected list of kings is as follows[2] :—

King	Date
Dantivarma I	
Indra I	
Govinda I	
Karka or Kakka I	
Indra II	
Dantidurga, Dantivarma I, Khadgávaloka	754
Krishna I, Kannara, Akálavarsha, S'ubhatunga	
Dhruva, Nirupama, Dhárávarsha	
Govinda III, Prabhútavarsha, Jagattunga, Atis'aya-dhavala, m. Gámundabbe	782–814
S'arva, Nripatunga, Amoghavarsha	815–877
Krishna II, Kannara, Akálavarsha, S'ubhatunga	884–913
Jagattunga, Prabhútavarsha, Pratápávaloka	
Indra III, Nityavarsha, m. Vijámbá	915–917
Govinda V, Prabhútavarsha, Suvarnavarsha	918–933
Baddiga, Amoghavarsha, m. Kundakadevi	
Krishna III, Kannara, Akálavarsha	939–968
Khoṭṭiga, Nityavarsha	968–971
Kakka II, Kakkala Amoghavarsha, Nripatunga	972–973

[1] Their inscriptions are often on cruciform stones, very artistic in appearance, and quite different from any others. The upper arm is deeply bevelled, and a large plough engraved from one end to the other of the cross tree. [2] *cf. Ep. Ind.*, III, 54.

These kings very commonly had the title Vallabha, taken from the Chalukyas. In its Prákrit form of Ballaha, which is often used alone in their inscriptions in Mysore, without any name, it furnishes the key by which to identify the powerful dynasty called Balharás by Arab travellers of the tenth century, and described by them as ruling from Mánkir (Mányakheta).

Indra II is said to have married a Chalukya princess, but Dantidurga, who died without issue, and Krishna I, his maternal uncle, who therefore came to the throne after him, were successful in overcoming the Chalukyas and establishing the supremacy of the Ráshṭrakúṭas. The beautiful Kailása temple of Elura was probably erected by Krishna. Dhruva, Dhora, Dhárávarsha or Nirupama, though the younger son, superseded his brother Govinda and was a brave and warlike prince. He humbled the Pallava king of Kánchi and took from him a tribute of elephants. He also defeated and imprisoned the impetuous Ganga, who had never been conquered before. In the north he drove the king of the Vatsas into the desert of Márváḍ. Govinda or Prabhútavarsha, his son, was one of the most powerful kings of his line. He conquered the Keralas, Málavas, S'auṭas, Gurjaras and the kings of Chitrakúṭa (in Bandalkhand) and took away from his enemies (the Chalukyas) the emblems of the Gangá and Yamuná. He released Ganga from his long and painful captivity, but had to imprison him again on account of his hostility, and took tribute from Dantiga, the ruler of Kánchi. On this latter expedition, in 804, he halted at the *tírtha* of Rámes'vara, on an island in the Tungabhadra (Kuruva, about five miles south of Honnáli), and had some sport with wild boars there. The kings of Anga, Vanga, Magadha, Málava and Vengi did homage to him, and the latter, probably the Eastern Chalukya king Vijayáditya Narendramrigarája, was compelled to build the walls of his fortress, apparently at Mányakheta. The newly acquired province of Láṭa (in Gujarat) he gave to his younger brother Indra. Eventually Govinda once more released the Ganga king (Sivamára), and in conjunction with the Pallava king Nandivarma, replaced him on his throne.

During the time the Ganga king was a prisoner, Mysore was governed by viceroys appointed by the Ráshṭrakúṭas. The first of whom we have any record is Kambharasa, Kambhaiya, or S'aucha Kambha, surnamed Ranávaloka, who was apparently the son of Dháravarsha and brother of Govinda. Of his time there are three inscriptions,[1] one dated in 802. At a later date, 813, we have Cháki Rája as viceroy,[2] whose sister was married to a Chalukya prince named Yas'ovarma.

[1] At Maṭṭakere (Heggadadevankote taluq), Manne (Nelamangala taluq), and S'ravana Belgola (No. 24). [2] *Ind. Ant.*, XII, 18.

Nripatunga or Amoghavarsha, his son, succeeded to the throne. He defeated the Chalukyas, who made peace with him at Vinguvalli. He presented the Konkan to Kapardi of the Siláhára family, and after a prolonged reign of over sixty years, voluntarily retired from the throne. The celebrated Jinasenácharya, author of the A'di Purána, was his preceptor. Nripatunga evidently took a great interest in the Kannaḍa country and literature, for to him we owe the Kavirájamárga, the earliest known work on metrical composition in that language. It is written in Kannaḍa verse, and in it he gives a glowing account of the country and of the culture of the people, as the following quotations will show:—"The region which extends from the Káveri to the Godávari is the country in which Kannaḍa is spoken, the most beautiful land in the circle of the earth. . . . Apt are the people of that land in speaking as if accustomed to verse, and in understanding it when spoken: clever in truth are they, for they are ripely skilled in the usages of poetry without giving themselves up to its study. Not only students but others are all skilful in their speech, and know how to teach wisdom to young children and words to the deaf."

Krishna or Kannara II, Akálavarsha, married a Haihaya princess belonging to the Kalachuri family, daughter of the king of Chedi. He seems to have been engaged in constant wars with the Eastern Chalukyas. Of his son Jagattunga Prabhútavarsha, there is an inscription in Chellakere taluq, undated, in which a Pallavádhiraja is represented as governor under him. Of the succeeding kings, Govinda had an elder brother, Amoghavarsha, from whom he seems to have usurped the crown. Govinda was so liberal with his donations that he was called Suvarnavarsha (raining gold). Owing to failure of heirs he was succeeded by his uncle Baddiga, and he by his son Krishna III Kannara or Akálavarsha. It was the latter who was assisted by the Ganga king Bútuga, his brother-in-law, in securing the throne, as previously related. He, too, by the aid of Bútuga, was victorious over the Cholas, and in return for this service made over the north-western parts of Mysore and districts beyond to the Ganga king.[1] It is not clear that some of these had not been occupied by the Gangas before, and several formed the dowry assigned to his bride. The dominions of the Ráshṭrakúṭas were in this reign at their utmost extension, the Chola territories in the south and Gujarat in the north being in their power. Krishna Rája's daughter was married to a son of Bútuga. But the relations between the Raṭṭas and Gangas must have changed in the time of Nityavarsha, the brother who next came to the throne, as there are inscriptions of the Ganga king Márasimha Nolamba-

[1] *See* A'takur Inscription, Mandya taluq No. 41, *Ep. Carn.*, Mysore I.

kulántaka in which he appears as a feudatory of Nityavarsha. But the Raṭṭa supremacy was now drawing to a close. In 973 Kakka or Kakkala was defeated, and probably slain, by Taila of the Western Chalukya family, and the Ráshṭrakúṭa empire came to an end. Taila married Kakkala's daughter, but the last representative of the Ráshṭrakúṭas was Indra, a grandson of Krishna III, who died at S'ravana Belgola in 982.[1]

Chalukyas (*continued*).—We left the Chalukyas, on their being superseded by the Ráshṭrakúṭas, in order to follow the history of the latter dynasty. Its downfall, however, restored the supremacy of the Chalukyas, and we may resume the annals relating to this line of kings. It was in the time of Kírtivarma II that the Chalukyas lost their power. He may have been succeeded by another Kírtivarma, but this is doubtful. The names of the subsequent kings of the intervening period are more reliable, namely, Taila, Vikramáditya, Bhíma, Ayyana (who married a daughter of the Ráshṭrakúṭa king Krishna), and Vikramáditya IV (who married Bonthá-devi, daughter of Lakshmana, of the Chedi or Kalachurya family). One Chalukya, named Jayasimha, fled to Anhalvara in Gujarat, the court of Bhója Rája, the last of the Sauras. Here his son Múla Rája married the daughter of Bhója Rája, and in 931 succeeded the latter on the throne, the Salic law being set aside in his favour. He ruled at Anhalvara for fifty-eight years, and his descendants occupied the throne of that country with great glory till 1145.

Meanwhile Tailapa, the son of Vikramáditya above mentioned, defeated the Ráshṭrakúṭas in the person of the king Kakkala, and retrieved the Chalukya fortunes. He succeeded to the throne in 973, and transmitted to his posterity a kingdom which increased in splendour and prosperity under each succeeding reign for nearly 200 years. The following is a list of the kings for this period[2]:—

Tailapa, Núrmaḍi Taila II, A'havamalla	973–997
Satyás'raya, Irivabeḍenga	997–1009
Vikramáditya V, Tribhuvanamalla	1009–1018
Jayasimha II, Jagadekamalla	1018–1042
Somes'vara I, Trailokyamalla, A'havamalla	1042–1068
Somes'vara II, Bhuvanaikamalla	1068–1076
Vikramáditya VI, Tribhuvanamalla, Permáḍi	1076–1126
Somes'vara III, Bhúlókamalla	1126–1138
Jagadekamalla, Perma	1138–1150
Tailapa, Núrmaḍi Taila III, Trailokyamalla	1150–1182
Somes'vara IV, Tribhuvanamalla	1182–1189

The former kings of the Western Chalukya line had been largely occupied in the south in wars against the Pallavas, whose power they

[1] *Ins. at Sr. Bel.* No. 57. [2] *cf. Ep. Ind.*, III, 230.

ultimately broke. The kings of the present period we shall find were equally engaged in that quarter in struggles with the Cholas. The thirty years' period of 973 to 1003, during which the Eastern Chalukya kingdom of Vengi was without a ruler, seems to have been a time when the Cholas had overrun the country, having first acquired the territories of the Pallavas, including the city of Kánchi. We accordingly find Tailapa described as full of desire to fight with the Chola Rája, and as being a destroying fire to the Cholas. He married Jakabbe, the daughter of Kakkala, the Ráshṭrakúṭa king whom he had subverted, and their son was Satyás'raya, who succeeded him, and against whom the Chola king Rájarája fought. Satyás'raya, by his wife Ambikádevi, had two sons, Vikrama and Das'avarma. He also, it is said, had a daughter, who was married to the Pallava king Iriva Nolambádhirája. Vikrama came to the throne after his father's death, but, dying without issue, was succeeded by Jayasimha, the son of Das'avarma and Bhágala-devi. He is described as a lion to Rajendra Chola, who was the son and successor of Rájarája, during whose reign he had overthrown the Ganga kingdom, in about 1004, and established the authority of the Cholas throughout the south and east of Mysore. Jayasimha, or Jagadekamalla, in 1019, is said to have driven Chola into the sea. On the other hand, in 1021, he is said in Chola inscriptions to have turned his back at Mus'angi (possibly Uchchangi, in the south-west of the Bellary district[1]), and by 1026 Rájendra Chola is said to have taken the $7\frac{1}{2}$ lakh country of Iraṭṭapáḍi (Raṭṭaváḍi) from Jayasimha. By 1039 the Cholas, under Rájádhirája, are said to have burnt the palace of the Chalukyas at Kampili (on the Tungabhadra, in Bellary district). Jayasimha was succeeded by his son Somes'vara, Trailokyamalla, or A'havamalla, who was exposed to a formidable invasion by the Cholas, in which they burnt Pulikara-nagara (Lakshmes'vara in Dhawrar district), and destroyed its famous Jain temples erected by Permádi Ganga. But he seems to have defeated them at Kakkaragond on the Tungabhadra, and driven them southwards, though they claim a victory over him at Koppa on the Perár (possibly Kuppam on the Pálár, in Kangundi, North Arcot[2]), and the plundering of his camp. This must have stopped his pursuit of them, on return from which he halted at Puliyár-pattana (perhaps Huliyár, Chiknayakanhalli taluq). It was he who first made Kalyána the capital. His chief queen was Mailala-devi, a Ganga princess, by whom he had two sons, who succeeded him, and who assume all the Ganga titles of Kongunivarma Satyavákya Permádi. He must also have had a Pallava wife, his son by whom, Jayasimha, takes the

[1] *See So. Ind. Ins.*, II, 94. [2] *ib.* I. 134.

Pallava and Nolamba titles. He also had a wife of the Hoysala family, though no issue of this marriage is recorded. But he had another son, Vishnuvardhana Vijayáditya, who is styled the lord of Vengi, and whose mother must have been of the Eastern Chalukya family. This is the prince described as about to sink into the ocean of the Cholas, whom Rájarája and Chola-Ganga of the Kalinga Gangas maintained in power and caused to enjoy prosperity for a long time in the western region. We accordingly find him in 1064 and 1066 ruling over the Nolambavádi Thirty-two Thousand country (the Bellary and Chitaldroog districts), with the seat of his government at Kampili (before mentioned). When the Cholas were driven out of the north of Mysore, therefore, this province formed a barrier against their future encroachments. A'havamalla died in 1068 at Kuruvaṭṭi (on the Tungabhadra, in Bellary district, not far from Harpanhalli), and was succeeded by his son Somes'vara II or Bhuvanaikamalla. He was apparently a weak prince and did not long retain possession of the crown. But he had a powerful minister and general in Udayáditya of the Ganga family, who is said before 1071 to have defeated a secret conspiracy against the throne and against the guru.

Vikrama in 1076 expelled his brother, seized the throne and became one of the most powerful of the Chalukya monarchs. He set aside[1] the S'aka era, and from his accession established the Chalukya Vikrama era. which continued in use as long as the Chalukyas were in power. Many interesting particulars regarding him are contained in Bilhana's poem on his history.[2] Previous to his accession to the throne he had gained so many important victories, chiefly against the Cholas and other powers south of the Tungabhadra, that his brother, moved by jealousy, sent forces into the Banavasi country (the Shimoga district) to seize him, but Vikrama destroyed them. He seems, however, to have taken the precaution of strengthening himself by alliances, for he married his daughter to Jayakes'i, king of the Kadambas, whose capital was then at Goa ; and formed a friendship with his former enemy, the Chola Rája, receiving a Chola princess in marriage. The Chola king died soon after and his kingdom was thrown into a state of anarchy. On hearing this, Vikrama, who was still tarrying on the Tungabhadra, at once started for the south, in order to place his wife's brother on the throne. He entered Kánchi and put down the rebels there; then did the same at Gangakunda (Gangaikondas'olapuram in the north-east of Trichinopoly district) and re-established the Chola power. But not long after his return he

[1] Literally *rubbed it out*, as schoolboys rub out the figures they write in the sand.

[2] *Vikramánka-deva Charita*, published by Dr. G. Bühler in Bombay.

learned that his brother-in-law had lost his life in a fresh rebellion, and that Rájiga, the lord of Vengi, had taken possession of the throne of Kánchi. Vikrama at once prepared to march himself against the usurper; but the latter opened negotiations with Somes'vara, who, thinking a favourable opportunity had offered itself for the destruction of his hated brother, eagerly entered into the alliance. He followed so closely on Vikrama's march to the south, that when the latter came up with Rájiga's army, Somes'vara's forces were encamped not far off in his rear. A terrible battle ensued, in which victory declared for Vikrama; Rájiga fled and Somes'vara was taken prisoner. Vikrama placed his younger brother, Jayasimha, in the government of Banavase and repaired to Kalyána. He there heard that a *svayamvara* was proclaimed for Chandralekha or Chandala-devi, daughter of the Siláhára prince of Karaháṭa, and possessed of marvellous beauty. He also ascertained that the lady, on hearing of his valiant exploits, had fallen in love with him, and therefore hastened to the festival, where he was chosen as the bridegroom from among the assembled princes of Ayodhya, Chedi, Kanyákubja, Kálinjara, Málava, Gurjara, &c., who, though filled with anger at the result, were restrained from violence through fear of the great Chalukya.[1] Next year his brother Jayasimha rebelled, and collecting a large army advanced to the Krishna. Vikrama, being forced in self-defence to take the field against him, a battle was fought, in which Jayasimha was defeated and taken prisoner. The remainder of Vikrama's reign seems to have been peaceful, with the exception of an expedition in 1081 against Kánchi and the Pallavas, and one north of the Narmada in 1083. But towards the close he was invaded by the Hoysala king, who was driven back by his general, Achyugi Deva. In his celebrated law book, the Mítákshara, Vijnánes'vara, who lived at Kalyána at this period, says, "There has not been, there is not, and there will not be, on the surface of the earth, a city like Kalyána; and never was a monarch like the prosperous Vikramárka seen or heard of."[2]

Soma, called Bhúlokamalla, Vikrama's son, succeeded in 1126 to a kingdom powerful and prosperous on every hand. To him all kings applied the name Sarvajna (all-wise), and he appears to have been of literary tastes, as he was the author of Mánasollása, on the policy and recreations of kings, in Sanskrit. Jagadekamalla, whose real name does not appear, is described as having taken possession of the Pallava territories. He also repulsed an invasion by the Hoysalas.

Under Núrmadi Taila or Trailokyamalla, the Chalukya dynasty,

[1] The names of five other wives of his occur in inscriptions.
[2] Bhandarkar's *Early Hist. of the Dekhan.*

which had reached its zenith with the last Vikramáditya, began rapidly to decline. A powerful noble named Bijjala, of the Kalachurya race, had been appointed general of the Chalukya armies, and the influence which he thereby obtained he turned against his sovereign and expelled him from the throne. This event occurred in 1157. The Chalukya king retired south and maintained himself in the Banavase country. The religious feuds which raged at Kalyána in connection with the establishment of the Lingáyit creed kept the hands of the Kalachuryas fully occupied. The Chalukya influence, therefore, was not extinguished, and Somes'vara, the last of his race, succeeded to the fallen fortunes of his house in 1182. He seems to have had his residence at Annigeri in Dhárwád, and later at Kurgod, to the north of Bellary. What ultimately became of him does not appear, but the Hoysalas of Dorasamudra from the south, and the Yádavas of Devagiri from the north, soon closed in upon the disputed dominions; and the great and powerful Chalukya name disappears from history as that of a dominant power, though certain descendants of the line appear to have ruled in some parts of the Konkan till the middle of the thirteenth century.

Kalachuris.—The Kalachuris, or Kalabhuris, were one of the royal houses subjected by the Chalukyas on their first arrival in the south. They were apparently connected with the Haihayas in descent. The founder of the line was named Krishna, and is said to have been born of a Brahmani girl by Siva. Professing to be a barber, "he slew in Kálanjara an evil spirit of a king who was a cannibal, and taking possession of his kingdom, reduced the Nine-lakh country of Dahala (Chedi or Bandelkhand) to obedience and ruled in peace." A Chedi or Kalachuri era, dating from 249 A.D.,[1] is used in their inscriptions in the north, and is evidence of the antiquity of the family. Among the titles in their inscriptions in Mysore, of which there are many in the north of the country, are the following:—Lord of the city of Kálanjara (the well-known fortress in Bandelkhand), having the flag of a golden bull, S'anivára-siddhi, Giridurgamalla.

Our history is concerned with the Kalachuris from the time of Bijjala, who supplanted the Chalukyas in 1151, to 1182, when the line became extinct. The period, though short, is of considerable importance and interest from having seen the birth of the Lingáyit religion, which so largely prevails throughout the Kannaḍa-speaking countries.

The following is the list of these kings:—

Bijjala, Bijjana, Nissankamalla, Tribhuvanamalla	1156–1167	Sankama, Nissankamalla	1176–1181
Ráyamurári Sóvi, Somes'vara, Bhuvanaikamalla	1167–1176	A'havamalla, Apratimalla	1181–1183
		Singhana	1183

[1] As determined by Professor Kielhorn (*see Ep. Ind.*, II. 299).

Bijjala was a Jain. As has been related, he took advantage of his position as general of the Chalukya armies to usurp the throne. But for several years he did not assume the royal titles. It was not till the sixth year of his usurpation, or 1162 that he marched to the south, whither the Chalukya prince had retired, and then proclaimed himself supreme. During his reign, Basava, the son of an A'rádhya, came to settle in Kalyána, where he became the son-in-law of the chief minister. He had a very beautiful sister named Padmávati, whom Bijjala having seen, became enamoured of and married. Basava thus in course of time was appointed chief minister and general. The Raja gave himself up to the charms of his beautiful bride and left all power in the hands of Basava, who employed the opportunity thus afforded him to strengthen his own influence, displacing the old officers of state and putting in adherents of his own, while at the same time he sedulously cultivated the favour of the prince. By these means, and the promulgation of a new faith, as will be elsewhere described, he increased rapidly in power. At length Bijjala's fears were roused, and he made an attempt to seize Basava; but the latter escaped, and afterwards dispersed the party sent in pursuit. His adherents flocked to him, and Bijjala, advancing in person to quell the insurrection, was defeated and compelled to reinstate the minister in all his dignities. Basava not only resumed his former power and authority, but formed a plot against the life of the king, probably in the hope of becoming supreme in the state as regent during the minority of his nephew, the son of Bijjala and Padmávati. Accounts differ as to the mode in which the king was killed. According to the Jain account, in the *Bijjalanka Kávya*, he was poisoned on the banks of the Bhíma when returning from a successful expedition against the Silahara chief of Kolhapur: while the *Basava Purána* of the Lingáyits states that he was assassinated by three of Basava's followers.

Ráyamurári Sóvi, the son of Bijjala, resolved to revenge his father's death, and Basava fled to Ulive or Vrishabhapura on the Malabar coast. Thither the king pursued him and laid siege to the place. It was reduced to extremity, and Basava in despair threw himself into a well and was drowned. But according to the Lingáyits he disappeared into the linga at Sangames'vara, at the junction of the Malprabhá and Krishna. The other three kings were brothers of Sóvi, and during this period the last Chalukya regained a certain portion of his kingdom, but the territories of both towards the south were absorbed into the dominions of the Hoysalas, who had by this time risen to power in Mysore.

Cholas.—The Cholas[1] were one of the most ancient dynasties known in the south, being mentioned along with the Pándyas in the edicts of As'oka. They were of the Súrya-vams'a or Solar line. In the second century their capital was at Uraiyúr (Warriore near Trichinopoly), but from the tenth century it was at Tanjore. They appear first to have come into contact with Mysore at about that time, and, strange to say, there are hardly any earlier annals of the line. The following list contains nearly all that is known of the kings who reigned at the time of their greatest power. They have a great number of titles, but as these apply to more than one king it is difficult to assign each to the right one.

Parántaka		Rájendra, Rájádhirája	1016–1064
Rájáditya	– 950	Kulottunga I	(1064) 1071–1112
. . . . . .	950–	Vikrama	1112–1127
Rájarája	984–1016	Kulottunga II	1127

Parántaka, who was perhaps preceded by Vijayálaya and A'dityavarma, had the titles Madiraikonḍa (capturer of Madura) and Kóparakesari-varma, and is said to have married the daughter of the king of Kerala. He conquered the Bána, Vaidumba, Lanka and Pándya kings, the latter being named Rájasimha. Rájáditya it appears was Parántaka's son. As before related (p. 315) he was killed at Takkola by the Ganga king Bútuga, the brother-in-law of the Ráshṭrakúṭa king Kannara, who had marched into the Mysore country to repel this invasion by the Cholas. Kannara thus victorious, assumes in some Tamil inscriptions the titles Kachchiyun-Tanjaiyun-konḍa[2] (the capturer of Kánchi and Tanjore), and seems to have established his power for a time over these territories. The Chola succession for the period following Rájáditya's death is not clear until Rájarája, in whose time the Cholas successfully invaded all the south, up to Kalinga on the east and the Tungabhadra on the west. The Vengi territory was without a ruler, probably as the consequence of their incursions, from 973 to 1003. In the end, the Chola king's daughter Kundavá was married to the Eastern Chalukya king Vimaláditya and the Vengi territory virtually annexed. Meanwhile, the king's son Rájendra Chola captured Talakád in about 1004 and overthrew the Ganga dynasty, taking in consequence the name of Gangaikonḍa-Chola. The whole of Mysore, south of the Kaveri from Coorg, and east of a line from about Seringapatam to Nandidroog, was overrun and annexed. The policy of the Cholas seems to have been to impose their names upon all their conquests. The south of Ganga-váḍi, or that part of the Mysore district, thus acquired the name of

[1] In its Tamil form the name is more properly S'ora; in the Telugu country, Choḍa.
[2] *See* paper by Venkayya, *Chr. Coll. Mag.*, April 1892.

Muḍikonḍachola-manḍala; the north-west of the Bangalore district was the Vikramachola-manḍala; the Kolar district was the Nikarilichola-manḍala; more to the north, and extending beyond Mysore, was the Iraṭṭapáḍikonḍachola-manḍala. The subdivisions of these larger provinces were called valanáḍ, that is, oḷanáḍ, or included district. Thus the southern portion of the first above named was the Gangaikonḍa-chola-valanáḍ, while that of the third was the Jayankonḍachola-valanáḍ. Towns were treated in the same way, so that Talakáḍ became Rájarájapura; Manalúr (Malúrpatna near Channapatna) became Nikarilicholapura, but Kolar seems to have retained its original name of Kuvalála. The list of Rájarája's conquests, that is, those made in his reign, as given in his inscriptions, are Gangaváḍi, Raṭṭaváḍi, Malenáḍ, Nolambaváḍi, Ândhra, Kongu, Kalinga, and Pánḍya, as well as Vengai, Taḍikaipáḍi, Kollam (Quilon) and Ilá (Ceylon). But of course only portions of some of these were subdued. This king had the title Kóvirájakesarivarma.

He was succeeded by his son Rájendra Chola, who had been his father's principal general, aided by a brother, perhaps Rájadhirája, unless this was a name assumed by himself in the latter part of his reign. The conquests he claims to have made are: Yeḍatore, Vanavási, Kollipáki, and Manne (Nelamangala taluq). He also seized the crown of the king and queen of Ilá, together with a celebrated crown and necklace which the Pándya king had given up to them, and also took possession of a crown and necklace which were heirlooms worn by the Kerala kings, and another crown of pure gold which Paras'uráma had placed in one of the islands of the western coast. He boasts of having put to flight the Western Chalukya king Jayasimha at Mus'angi, as previously related. His daughter Ammangá was married to the Eastern Chalukya king Rájarája,[1] who was the son of his sister. Later on, another daughter, Rájasundari, was married to the Kalinga Ganga king Rájarája,[1] but this was not accompanied with submission to the Chola power, though their son was called Chola-Ganga. Rájendra Chola had, among others, the title Kóparakesarivarma and Madhurántaka.

The next king was Kulottunga Chola. He was the son of the Eastern Chalukya king Rájarája and Ammangá, and was called Rájendra Chola[1] before coming to the throne. He ruled at Vengi at first, and did not take possession of the Chola throne till 1071. He may possibly be the Rájiga whose name is prominent in connection with the expeditions of the Western Chalukya prince Vikramáditya, as

[1] Great confusion has arisen from the repetition of these same names in different families.

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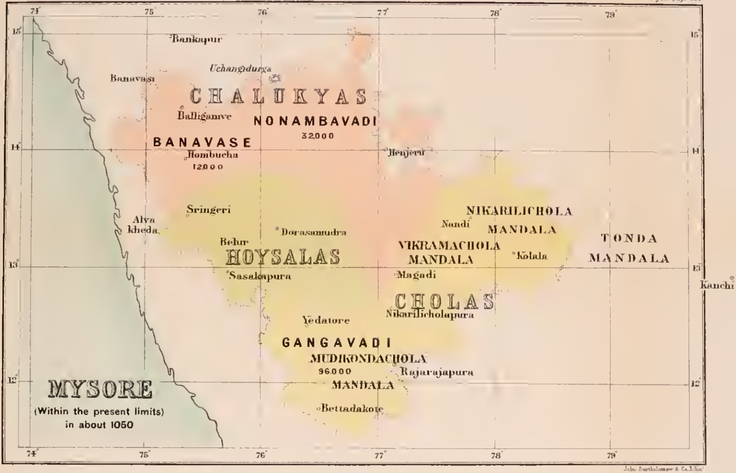

John Bartholomew & Co. Edin.

having attempted to establish himself at Kánchi. If so, other claimants to the Chola throne must have existed, who eventually were removed and the way opened for his peaceful coronation. He married Madhurántaki, daughter of the Chola king Rájendra. Most of his inscriptions in Mysore begin thus:—"The goddess Fame shining upon him, the goddess Victory desiring him, the goddess Earth abiding with him, the goddess Fortune wedded to him; the wearer of the diamond crown, having destroyed the Villavas (the Cheras), swaying his sceptre, having made a victorious coronation, seated on his throne together with his queen consort," expressions betokening a firmly established and peaceful sovereignty, which in this reign reached its zenith.

His eldest son Vikrama Chola next came to the throne, but the younger sons had, in imitation of his own beginning, been appointed viceroys of Vengi. The second son Rájarája thus ruled there in succession to Vijayáditya for only one year, 1077 to 1078, as he did not like it and returned to the south. The third son Víra Chola was then appointed and remained there till at least 1100. It was during the time of Vikrama Chola, or before 1117, that the Hoysalas recovered Talakád, driving out the Cholas from the Mysore country. Kulottunga Chola II, son of Vikrama, came to the throne in 1127, but we are no further concerned with this line, whose power, indeed, now greatly declined and was never again what it had been.

Hoysalas.—This dynasty, like that of the Kadambas, was essentially Mysorean, and ruled this country with great glory from the 11th to the 14th century. Their native place was Sosevúr, or Sasakapura, which I have identified with Angaḍi in the Western Ghats, in the Manjarabad country (now in the south of Mudgere taluq). The earlier kings were Jains. They claim to be Yádavas, and therefore of the Lunar line. The founder of the family was Sala, and the exploit which raised him to a throne is related in numerous inscriptions. Going one day to worship Vásantiká, his family goddess, whose temple was in the forest near Sasakapura, his devotions were interrupted by a tiger, which bounded out of the jungle glaring with rage. The yati or priest of the temple, snatching up a *saláki* (a slender iron rod), gave it to the chief, saying in the Karnáṭaka language *hoy Sala* (strike, Sala!), on which the latter discharged the weapon with such force at the tiger as to kill him on the spot. From this circumstance he adopted the name Hoysala,[1] formed from the words of the yati's exclamation, and the dynasty so called, descended from him, had a tiger (*sárdúla*) as the device on their flag. The following is the list of the kings, with their dates, as determined by me from inscriptions:

[1] The older form is Poysala, which is the same word.

Sala, Poysala, Hoysala	1007
Vinayáditya, Tribhuvanamalla	1047–1100
Ballála I	1101–1104
Bitti Deva, Vishnuvardhana, Víra Ganga, Tribhuvanamalla	1104–1141
Nárasimha I	1136–1171
Ballála II	1172–1219
Nárasimha II	1220–1235
Somes'vara	1233–1254
Nárasimha III	1254–1291
Ballála III	1291–1342
Ballála IV, Virúpáksha Ballála	1343–

Of the reign of Sala we have no very reliable records, except that Hoysala mahádevi, probably a daughter of his, was in 1047 the queen of the Chalukya king Trailokyamalla. We also know that the Hoysalas were at first feudatories of the Chalukyas. But a narrative in the Mackenzie MSS. states that the tiger Sala killed had committed such ravages in the neighbourhood that the people were afraid to assemble for the annual festival of Vásantiká. Being now freed from the scourge by the valour of Sala, they gladly agreed, at the instance of the yati, to pay a contribution to their deliverer of one fanam (4 as. 8 p.) a year for each family. This seemed so trifling a reward for the important service rendered, that the second year it was doubled, the third year trebled, and so on for five years. Hoysala had faithfully placed what he received each year at the yati's feet, and in the second year had been ordered to use the money in raising a small force. This having been increased by the end of the fifth year to a respectable number, Hoysala was directed to rebuild the ruined city of Devarapuri (? Dvárapuri), and was informed that he would discover a large treasure for the purpose among the ruins, to be applied to fortifying it. This may have been the Dvárasamudra, Dorasamudra, or Dvárávati (now Halebid, Belur taluq), which became the Hoysala capital.

Vinayáditya, Hoysala's son, succeeded to the throne, and having conquered the Malapas, ruled over a territory bounded by Konkaṇa, A'lvakheḍa, Bayalnáḍ, Talakáḍ and Sávimale.[1] The title Malaparoḷ-ganḍa is assumed by all the Hoysalas and used alone on some of their coins. These Malapas or hill-chiefs may have been the Danáyaks of tradition, who, after the overthrow of the Ganga power, sought to establish a kingdom of their own in the south and west of Mysore. There were nine brothers, the Nava Danáyak, and their stronghold was Beṭṭadakóṭe on the Gopálswámi hill. Bhíma Danáyak, one of four of the brothers, the chief of whom was named Perumál Danáyak, and who

[1] The original is *Konkaṇadáḷvakheḍadabayalnáḍa*, &c. If, as is natural to suppose, four boundaries are meant, two, those of the east and west, must be found in these words. They may be – east, Konkaṇa and the A'ḷva tableland, *i.e.*, the tableland of South Kanara; west, the plain country, *i.e.*, of Mysore. The hill Sávimale, which continued for a long time to be the Hoysala boundary on the north, has not been identified. Possibly it had some connection with Sávanúr.

had quarrelled with the other five, gained possession of Nagarapura (Nanjangud) and Ratnapuri (Hedatale) and set up a separate government. After a time they returned to attack Beṭṭadakóṭe, which, after a siege of three years, was taken by stratagem. Mancha Danáyak, who conducted the defence, seeing the citadel taken, leaped from the hill on horseback and was killed.[1] The four victorious Danáyaks, placing a junior member of the family in the government of Beṭṭadakóṭe, set forth on expeditions of conquest, in the course of which it is said that they penetrated as far as Goa on the north; to Davasi-beṭṭa (the southern limit of Coorg) on the south; to the Bisale Ghat (in the north-west of Coorg) on the west; and to the pass of Satyamangala (north-east of the Nilagiris) on the east. Vinayáditya is said to have taken pleasure in constructing tanks and buildings, and in forming populous towns. The temples he built were on so large a scale that the pits dug for making bricks became tanks, mountains quarried for stone became level with the ground, the paths by which the mortar carts went to and fro became ravines. This calls to mind the splendidly carved temples of Halebid, the principal one still remaining being the Hoysales′vara, a memorial of the founder of the family. Vinayáditya's wife was Keleyabbe or Keleyalá Devi, and they had a son, Ereyanga.

The latter was appointed Yuvarája in 1062, but seems to have held that position for thirty-three years and never to have come to the throne, as his father outlived him. Ereyanga is described as a right hand to the Chalukya king, and must have been a principal commander in the Chalukya army, for he is said to have burnt Dhárá, the city of the Málava king; struck terror into Chola, who was eager for war; laid waste Chakragoṭṭa, and broken the king of Kalinga. Ereyanga's wife was Echala Devi, by whom he had three sons, Ballála, Biṭṭi Deva, and Udayáditya. Ballála succeeded his grandfather Vinayáditya, but did not live long, and Udayáditya died in 1123. Ereyanga's second son, Biṭṭi Deva, came to the throne in 1104 on the death of his elder brother, and proved to be one of the most powerful rulers of his time.

His capacity had been early discerned by the valiant Chalukya prince Vikramáditya, who is said to have remarked to his attendants, "Know the Hoysala alone to be invincible among all the princes." He soon set out on an extensive range of conquests over all the neighbouring countries. His general Ganga Raja, having captured Talakád, the former capital of the Gangas, he drove out the Cholas and took possession of the Ganga kingdom, assuming the title of Vira Ganga. Southwards, he subdued Kongu (Salem), Koyatúr (Coimbatore), and Niládri (the Nilagiris); westwards, the Male and Tulu

[1] The site of this leap is still pointed out.

countries (Malabar and South Kanara); eastwards, Kolálapura, Nangali and Kánchipura; northwards, Vengiri, Uchchangi, Viráta, Polalu, Bankapura, and Banavase. In short, he is described as burning to emulate the Sauvi'ra kings, as having "trodden the earth to dust with the squadrons of his Kámboja horse," and "overwhelmed his enemies as if the great deep had been broken up, the coursers of the sun being borne away in the deluge, and all the points of the compass filled with the sounds of their neighing." The boundaries of his kingdom in 1117 are thus stated,—the lower ghat of Nangali on the east; Kongu, Cheram, A'namale on the south; the Bárkanúr ghat road of Konkaṇa on the west; and Sávimale on the north. The provinces over which he ruled, as named in numerous inscriptions, were Talakáḍ, Kongu, Nangali, Gangaváḍi, Nolambaváḍi, Másaváḍi (perhaps Morasaváḍi), Huligere, Halasige, Banavase and Hánungal. This includes the whole of Mysore, with most of Salem, Coimbatore, Bellary and Dharwar. Coins of his have been found bearing on the reverse the legends *s'rí-Talakáḍu-goṇda* and *s'rí-Noṇambaváḍi-goṇda.* He virtually made himself independent, but in the north of their territory the Hoysalas continued to acknowledge the Chalukya sovereignty in their inscriptions until the time of Ballála II.

An important event in his career was his conversion from the Jain faith to that of Vishnu by the apostle Rámánujáchárya, who had taken refuge in the Hoysala territory from the persecutions of the Chola king, an uncompromising S'aiva. This step, accompanied by a change of his name to Vishnuvardhana, by which he is principally known, was probably taken in about 1117. Different reasons are given for it. One is that he had a daughter who was possessed: the Jains being unable to effect her cure; it was undertaken by Rámánuja, who cast out the evil spirit, and further, in eighteen days of public disputation, refuted the Jains and convicted them of heresy; those who after this would not submit being ground in oil-mills. Another version is, that the king had a Vaishnava wife who, by instigation of Rámánuja, hinted to him that the Jain priests were so haughty they would not even accept food at his hands. He was indignant at the idea and resolved to put it to the proof. Now the king had lost a finger, a mutilation that would prevent the Jain priests from eating with him. When, therefore, he found himself dishonoured by a refusal of his invitation, he went over in resentment to the other side, and abandoned the Jains to persecution. Rámánuja demolished nearly all tne Jain temples at the capital, said to have been 720 in number, and used the stones in embanking the large tank. The succeeding kings professed both the Vaishnava and the S'aiva creeds; but there was much religious

toleration and the Jains were often recipients of the royal favour. They were probably too numerous and influential to be ignored.

The character of the times and the government is illustrated by the following story :—Siva, it is said, appeared to a poor but holy Brahman, named Vishnus'arma, who was performing penance in the Chandradrona (Baba Budan) mountains, and presented him with a vessel containing *siddarasa* (mercury), explaining to him how it would convert iron into gold. The poor man, delighted, went to the capital with his treasure tied up in a bundle, which he placed for safety in a blacksmith's shop while preparing his meal. But the heat of the forge caused the substance to melt, and a drop or two falling out on some iron converted it at once to gold. The blacksmith and his family thereupon examined the bundle, and discovering what it contained secretly removed it and set fire to the hut. When the Brahman returned to claim his bundle he was informed that everything had been burnt. But on his making the matter known to the king, the blacksmith was ordered to be produced. He was beaten and tortured, but without effect, when the person in whose house the bundle had been concealed brought and laid it before the king, who ordered it to be at once restored to the owner. The Brahman, astonished at such generosity, made a present of it to the king, who in return gave him a valuable estate. Vishnuvardhana, deeming himself now provided with the means of obtaining wealth to any extent, sent for all the farmers and informed them that instead of the usual assessment he should require them in future to deliver up to him annually their old ploughshares, and on this condition they might cultivate to any extent. (The well, it is said, may be pointed out into which the ploughshares used to be cast !)

I cannot help considering the story to have some reference to gold-mining. Though traces of this industry exist in so many parts, as previously described under Geology, and although we know that vast sums of gold must have been obtained by the old governments, yet no mention of it is met with in the thousands of inscriptions that I have examined. It was, therefore, no doubt a royal monopoly and kept secret.

Vishnuvardhana's first wife was S'ántala Devi, a Jain, who died in 1131, apparently without any surviving male issue. He subsequently married Lakuma or Lakshmi Devi, who was the mother of Narasimha, the son who succeeded him. His death occurred at Bankapura in 1141. Narasimha, born apparently in 1136, seems to have been considered as on the throne from the time of his birth. He inherited a secure and peaceful kingdom, and except that some expedition may have been made in the direction of Devagiri, not much is said of events in his reign. On the other hand he is described as being like a god, enjoying the pleasures of the gods. His queen was Echala Devi, and they had a son Vira Ballála, who became one of the most

distinguished of the Hoysala kings, and after whom they are sometimes called the Ballála kings.

Víra Ballála came to the throne in 1172. He gained important victories to the north over the Kalachurya and Yádava forces, and carried the Hoysala kingdom up to and beyond the Peddore or Krishna, establishing his residence at Lokkigundi (Lakkundi in Dharwar). On the defeat of the Kalachuryas he assumed their titles of S'anivárasiddhi and Giridurgamalla. He also defeated Jaitugi, son of the Yádava king, at Lokkigundi, and thus acquired the sovereignty of Kuntala. He moreover gained a great victory at Soratur over Sevuna, the general of Jaitugi, and pursuing him to the banks of the Krishna, there slew him. He further reduced all the hill forts about the Tungabhadra, and subduing the Pándya who was ruling at Uchchangi, restored to him his power. Ballála's wife was Padmala Devi, by whom he had a son, Narasimha, born in 1183, who succeeded him in 1220. The events of his reign are the overthrow of Pándya, who had taken refuge with the Kádava (that is, the Pallava) army, and the subjugation of the Kádava and Makara kings, with the setting on his throne of Chola, who had been covered up under the clouds of dust raised by his enemies: also the erection of a pillar of victory at Setu (Adam's Bridge). Whatever the transactions referred to were, the Hoysalas always after this call themselves upsetters of the Pándya kingdom and setters up of the Chola kingdom. The conquests of the previous reign beyond the Tungabhadra seem to have reverted to the Yádavas. Narasimha's wife was Lokámbika, and their son was Somes'vara. He is said to have fought against Krishna-Kandhara, who was a Yádava king, and whose general claims to have acquired the territory of the turbulent Hoysalas and to have set up pillars of victory as far as the Kaveri. But Somes'vara's power was absolute to the south, where he took up his residence at Kannanur or Vikramapura in the Chola country, a place that has been identified as being close to Srirangam near Trichinopoly.[1] The boundaries of his kingdom in 1237 are given as Kánchi in the east, Velávura (Belur) in the west, the Peddore in the north, and Chalas'eravi (probably in the south of the Malabar district) on the south. By the Peddore is generally understood the Krishna, but as the name literally means only Big River, we must suppose it to be used here ambiguously and to refer to the Tungabhadra. His chief queen was Bijjala Devi, but he had a wife named Somala Devi when he went to live at Vikramapura, and also a wife Devala-mahádevi, a Chalukya princess.[2]

He had two sons, between whom his territories seem to have been

[1] By Dr. Hultzsch, *Ep. Ind.*, III, 9. [2] *loc. cit.*

divided, probably by mutual agreement subsequent to his death. Narasimha III, his son by Bijjali, continued in the ancestral kingdom with his capital at Dorasamudra, while Rámanna or Rámanátha (who ruled from 1255 to 1294), his son by Devala-mahádevi, obtained the Tamil country on the south, together with the Kolar and part of the Bangalore districts in the east of the Mysore country. His inscriptions are generally in Grantha and Tamil characters.[1] The reigns of the two kings seem to have been peaceful, but it was the lull before the storm. In the reign of Ballála III, son of Narasimha, the Hoysala power was brought to an end. The whole kingdom seems to have been united again under him, as he is credited with certain conquests, including Perundurai (which is in the Coimbatore district). To account for the destruction which shortly befell the Hoysalas, the following story is related :—

The king's sister, married to the S'enji raja, was now a widow. She therefore came on a visit to her brother, accompanied by her two sons, Lakkana and Virana, who were very handsome young men. One of the king's wives conceived a guilty passion for them, but her advances being alike repelled by each in turn, her love changed to hate, and she denounced them to the king as having made overtures to her. The king, justly enraged, ordered them to be at once impaled, and their bodies exposed like those of common malefactors at one of the city gates. Hearing what had happened, their unfortunate mother hastened to the palace to demand an inquiry and justice. But it was too late, the fatal order had been executed, and she was not only put out of the palace, but the inhabitants were forbidden to give her any assistance. In the agony of despair she wandered from street to street, invoking the vengeance of the Almighty on her brother, and predicting the speedy downfall of his empire. Arriving at the potters' street, worn with fatigue and sorrow, she requested and received a draught of water, in return for which act of kindness she declared that in the destruction of the capital that street should be spared. It is the only one that has survived.

In 1310 the Hoysala dominions were invaded by a Muhammadan army under Káfur, the general of Alá-ud-Din, the second king of the house of Khilji or second Pathan dynasty. A great battle was fought, in which the Hoysala king was defeated and taken prisoner. Dorasamudra was sacked, and the enemy returned to Delhi literally laden with gold.

From an inscription of 1316 it appears that Narasimha rebuilt the capital, having taken up his residence meanwhile at Belur. But in 1326, another expedition, sent by Muhammad III, of the house of Toghlak, completely demolished the city. The king then retired to

[1] Rámanátha's wife was Kamalá-devi, daughter of Ariya-Pillai, and she had a sister, Chikka Somala-devi. Rámanátha's own sister was Ponnambala-mahádevi. *Ep. Ind.*, III, 9.

Tondanur (Tonnur), north of Seringapatam, at the foot of the Yádava hills. In 1329, however, we find him residing at Unnámale (Tiruvanná-malai, Trinomalee, South Arcot district). There is a record of a son of his, Víra Virúpáksha Ballála, said to have been crowned in 1343, but as the Vijayanagar power arose in 1336, the Hoysalas now disappear from history.

Yadavas.—This line of kings claim descent from Krishna, through Subáhu, a universal monarch, who divided his empire between his four sons. The second son, Dridhaprahára, obtained the south, and his descendants ruled over the Seuna or Sevuna country, extending from Nasik to Devagiri. He was succeeded by twenty-two kings of his line, down to Bhillama,[1] who was contemporary with the Hoysala king Víra Ballála II., and from whose time alone the history of Mysore is concerned with the dynasty. They style themselves lords of Dvárávati (the capital of Krishna, not that of the Hoysalas), and their standard bore the device of a golden garuda. They overcame the Kalachuryas and became masters of all the western Dekhan, having their capital at Devagiri, the ancient Tagara, now known as Daulatabad. The following is the list of the kings :—

Bhillama	1187–1191	Mahadeva	1260–1271
Jaitugi, Jaitrapála	1191–1210	Rámachandra, Ráma Deva	1271–1309
Singhana	1210–1247	S'ankara	1309–1312
Kandhara, Kanhara, Krishna	1247–1260		

We have already referred to the severe struggles that took place between the Hoysala and Yádava armies for the possession of the Chalukya-Kalachurya dominions, and how Víra Ballála, by a series of victories over the forces of Bhillama and Jaitugi, carried his conquests up to and beyond the Krishna. Later the Yádavas gained the advantage, and the Hoysalas were forced to retire to the south of the Tungabhadra. The earliest of the Yádava inscriptions in Mysore are of the time of Singhana, and he probably took advantage of Víra Ballála's death to extend his power to the south. In this and the succeeding reigns a portion of the north-west of Mysore was permanently in their possession. Kandhara was Singhana's grandson. He describes himself as thruster out of the Hoysala king and restorer of the Telunga king (Ganapati of Orangal). His general also boasts of subduing the Raṭṭas, the Kadambas of the Konkana, the Pandyas of Gutti, and the turbulent Hoysalas, and setting up pillars of victory near the Kaveri. Mahadeva was Kandhara's younger brother, and attempted to establish his own son on the throne after him. But Rámachandra, son of Kandhara, secured it. In his time the seat of the Yádava government in Mysore was at Betur, near Davangere.

[1] *Cf.* Bhandarkar's *Early Hist. of the Dekhan.*

His general, Sáluva Tikkama, professes to have captured Dorasamudra, and obtained a tribute from it of all manner of wealth, especially horses and elephants. That he made a victorious expedition to the south is probable, but whether it extended so far is uncertain.

It was in the time of Rámachandra that the Muhammadans first appeared in the Dekhan. Alá-ud-Din, nephew of Jalál ud-Din Khilji, the founder of the second Pathan dynasty, resolved in 1294 to attempt the conquest of the Dekhan, and in order to throw the enemy off their guard, pretended to leave his uncle in disgust. Suddenly changing his course to the west, he appeared before Devagiri. The Raja was quite unprepared, but hastily collected a small army, and after vainly trying to oppose the enemy near the city, retired to the fort, carrying in a great quantity of sacks belonging to passing traders, believed to contain grain, but really filled with salt. Alá-ud-Din plundered the town, levying heavy contributions on the merchants, and besieged the fort. He at the same time gave out that a larger army was following, and thus induced Ráma Deva to offer 50 maunds of gold to buy him off. Meanwhile, the Raja's son, S'ankara Deva, arrived with a large force, and, contrary to his father's advice, attacked the Muhammadans. Though successful at first, he was defeated. Alá-ud-Din now raised his demands, but the contest might have been prolonged had not the troops in the fort discovered to their surprise that their provision was salt and not grain. At last it was agreed that the enemy should retire on receipt of 600 maunds of pearls, 2 of jewels, 1,000 of silver, 4,000 pieces of silk, etc., besides an annual tribute to be sent to Delhi.

How the aged Jalál-ud-Din came forth to welcome his victorious nephew, and how the latter, with the basest treachery, assassinated him while making professions of attachment, are matters of history. Alá-ud-Din, seated on the throne, again sent an expedition in 1306 against Devagiri, which had withheld the promised tribute. It was commanded by Malik Káfur, surnamed Hazár Dinári,[1] a eunuch. He had been the slave of a merchant, and taken prisoner in the conquest of Gujarat; but having attracted the king's notice, was speedily raised to the highest offices in the state.

Káfur overran the whole country, and Ráma Deva, finding resistance hopeless, submitted, and offered to go to Delhi. He was there received with distinction and restored to his kingdom with additional honours, which kept him faithful during the rest of his life. In this expedition occurred an incident deserving to be mentioned. On the conquest of Gujarat, that raja's wife, Kaula Devi, had been taken captive, and being admitted to Alá-ud-Din's harem, by her beauty and talent gained his

[1] A thousand *dinars*, that being the price for which he had been bought as a slave.

favour. She had charged the commander during this expedition to recover her daughter by the Gujarat raja, who had been long sought in marriage by S'ankara, the son of Ráma Deva, but refused, as she was a Rajput. Now, however, the Gujarat raja in his exile had consented, and sent her under an escort to Devagiri. No clue could be gained as to where she was, when a party from the camp going to see the caves of Ellora, by chance fell in with the escort. They were forced to fight in self-defence, and captured the princess. But it was not till afterwards they knew the value of the prize. The girl was carried off to Delhi, where the king's son, Khizr Khan, being brought up with her, became enamoured of her and ultimately married her. Their loves are the subject of a celebrated Persian poem by Amir Khusru.

In 1309, the army under Malik Káfur passed through Devagiri on its way to the conquest of Orangal, and was hospitably entertained by Ráma Deva. But the following year S'ankara Deva came to the throne, and the army being on its way to the conquest of Dorasamudra he was less friendly. Soon after he withheld the tribute, on which Káfur a fourth time marched into the Dekhan, in 1312, seized S'ankara Deva, put him to death, and took up his own residence in Devagiri.

In 1316 Haripála, the son-in-law of Ráma Deva, in common with many of the conquered princes, raised the standard of revolt in the Dekhan and recovered their possessions, expelling the Muhammadan governors. The paroxysms of rage into which Alá-ud-Din was thrown by this intelligence brought on his death, hastened, it is said, by poison administered by Káfur. The latter attempted to place himself next on the throne, but he was assassinated, and Mubárak succeeded. In 1318 he marched into the Dekhan, took Haripála prisoner, and ordered him to be flayed alive and his head put up over the gate of his own capital. Thus ended the line of the Yádavas of Devagiri, and in 1338 Muhammad Toghlak removed the capital of his empire from Delhi to Devagiri, giving it the name of Daulatabad.

Vijayanagar.—The last great Hindu sovereignty of the south was founded in 1336, and brings us back, after a lapse of more than two thousand five hundred years, to the site of Kishkindha, whose annals engaged our attention near the beginning of this historical survey. Though the details vary, all accounts attribute the origin of the Vijayanagar empire to two persons named Hakka and Bukka, assisted by the celebrated scholar Mádhava, surnamed Vidyáranya, or forest of learning.[1] Hakka and Bukka, of whom the former assumed the name of

[1] The capital was apparently called Vidyánagara (city of learning) at first, in honour of the sage Vidyáranya, who was chiefly instrumental in its foundation ; but by a natural transition it passed ere long into Vijayanagara (city of victory), the

Harihara, were the sons of Sangama, described as of the Yádava line and the Lunar race. The earliest of the inscriptions of the Vijayanagar kings are found north and west of Mysore, and they were probably Mysorean by origin and feudatories of the Hoysalas. Dorasamudra and Orangal, the respective capitals of Karnataka and Telingana, had fallen a prey at about the same time to the Muhammadans. But amid the general revolts occasioned by the rash measures of Muhammad Toghlak, the two brothers Harihara and Bukka took advantage of a period of public commotion to lay the foundation of a new State; to which they were moved by the sage Mádhava or Vidyáranya, who, besides experience and talent, may have brought pecuniary aid to the undertaking. He belonged to the school of S'ankaráchárya, and was the *jagat guru* of Sringéri (Kadur district), the members of which establishment, alarmed, as Wilson remarks, by the increasing numbers of the Jangamas and Jains, and the approach of the Muhammadans, may have contributed their wealth and influence to the aggrandisement of the sons of Sangama.[1]

The site selected for the new capital was a remarkable one, on the banks of the Pampa or Tungabhadra, where the ancient Kishkindha had stood. In the words of an inscription, "its rampart was Hemakúṭa, its moat the auspicious Tungabhadra, its guardian the world-protector Virúpáksha, its ruler the great king of kings Harihara."[2] The Vijayanagar sovereigns adopted the *varáha* or boar as the emblem

Bijanagar of Muhammadan historians, and the Bisnagar of the French. It is also commonly known as Anegundi, properly the name of a village on the other side of the river, said to have been the capital of the Yavanas, regarding whom so little is known. Anegundi, a Kannaḍa name meaning "elephant pit," was translated into Sanskrit as Hastinapura and Hastinavati, which is the designation in the Maha harata of the capital of the Pándus, near Delhi.

[1] Mádhava succeeded to the pontifical throne of Sringéri in 1331, at the age of 36, and lived till 1386. His brother Sáyana was the most celebrated commentator on the Vedas.

[2] The whole of the extensive site occupied by the ruins of Bijanagar on the south bank of the Tungabhadra, and of its suburb Anegundi on the northern bank, is occupied by great bare piles and bosses of granite and granitoidal gneiss, separated by rocky defiles and rugged valleys, encumbered by precipitated masses of rock. Some of the larger flat-bottomed valleys are irrigated by aqueducts from the river, and appear like so many verdant oases in this Arabia Petræa of Southern India. Indeed some parts of the wilderness of Sinai reminded me, but on a far grander scale, of this huddled assemblage of bare granite rocks on the banks of the Tungabhadra. The formation is the same; the scantiness of vegetation, the arid aspect of the bare rocks, and the green spots marking the presence of springs few and far between in the depths of the valleys, are features common to both localities.

The peaks, tors and logging stones of Bijanagar and Anegundi indent the horizon in picturesque confusion, and are scarcely to be distinguished from the more artificial ruins of the ancient Hindu metropolis of the Deccan, which are usually constructed with

on the royal signet, and their family god was Virúpáksha, the name under which Siva was worshiped in a celebrated temple erected at the capital. Their grants are signed *S'rí Virúpáksha*. Among their titles were, *ari-raya-vibháḍa*, *bháshege tappuva ráyara ganda*, *púrva-pas'chima-dakshima-samudrádhipati*, *Hindú-ráya-Suratrána*.

The following is the list of the Vijayanagar kings, based upon the evidence of inscriptions, but some dates may require slight readjustment when our information is complete :—

Harihara I, Hakka, Hariyappa	1336–1350	Virúpáksha	1468–1479
Bukka Ráya I, Bukka Ráya Odeyar	1350–1379	Narasa, Narasimha I,	1479–1487
Harihara II, Hariyappa Odeyar	1379–1405	Narasimha II, Immaḍi Narasinga	1488–1508
Deva Ráya I, Bukka II, Pratápa Deva Ráya	1406–1415	Krishna Ráya	1508–1529
Vijaya Ráya I	1416–1417	Achyuta Ráya	1530–1542
Deva Ráya II, Prauḍha Deva Ráya, Pratápa Deva Ráya	1417–1446	Sadás'iva Ráya (Ráma Rája till 1565, Tirumala Rája from 1566)	1542–1574
Mallikárjuna, Vijaya Ráya II, Immaḍi Deva Ráya, Immaḍi Prauḍha Deva Ráya	1446–1467	S'rí Ranga Ráya I	1574–1585
		Venkaṭapati Ráya I	1585–1614
		Ráma Deva	1615–1625
		Venkaṭapati Ráya II	1626–1639
		S'rí Ranga Ráya II	1639–1664

Sangama, by his wife Kámámbika,[1] had five sons, Harihara, Kampa, Bukka, Márappa, and Muddapa. Harihara was the first ruler of the Vijayanagar State, and was succeeded by Bukka. Kampa acquired territory in the Nellore and Kadapa districts, and was succeeded by his son Sangama, whose minister was Sáyana, the brother of Mádhava. Márappa conquered the Kadamba territories, and ruled at Chandragutti (Shimoga district). What became of Muddapa does not appear. Harihara is said to have defeated the Sultan, a reference to his driving the Muhammadans out of Orangal in conjunction with a confederacy of Hindu chiefs who collected an immense force for the purpose. Bukka Ráya in 1355 was ruling from Hosapaṭṭaṇa in the Hoysana country (perhaps Hosur, Goribidnur taluq), said to be the capital of Nijagali Kataka Ráya. In 1368 he reconciled some serious disputes between the Jainas and the Vaishnavas, "taking the hand of the Jainas and placing it in the hand of the Vaishnavas."[2] The Jains are

blocks quarried from their sides, and vie in grotesqueness of outline and massiveness of character with the alternate airiness and solidity exhibited by nature in the nicely poised logging stones and columnar piles, and in the walls of prodigious cuboidal blocks of granite, which often crest and top her massive domes and ridges in natural cyclopean masonry.—Newbold, *J. A. S. B.*, xiv.

[1] One inscription says he had five sons by S'áradá. This is the name under whic Sarasvati is worshipped as the tutelary goddess of Sringeri.

[2] *Ins. at Sr. Bel.*, No. 136.

described as occupying the country lying between Anegundi, Hosa-paṭṭaṇa, Penagonda and Kalleha (Kalya, Magadi taluq), and possibly these were the boundaries at that time of his kingdom. He married Gaurámbika, and had a son Harihara, who succeeded him on the throne; but he also had a son, Chikka Kampana, governing in the south of Mysore, and one Mallinátha, governing in the east of Mysore. Harihara II. is principally praised for his liberality in gifts at various sacred places, localities which show that his territories extended from the Krishna at Karnul to Kumbhakona, or even further south. His queen was Melá Devi, of the family of Ráma Deva, probably the Yádava king. The son who succeeded him was Deva Ráya, or Pratápa Deva Ráya, who at first apparently called himself Bukka Ráya. There were also two sons, Chikka Ráya Oḍeyar, perhaps the same prince before he came to the throne, governing at A'raga (Tirthahalli taluq), the chief city of the Male-rájya or hill kingdom; and Virúpáksha, who professes to have conquered all the eastern countries down to and including Ceylon. Deva Ráya's son Vijaya Ráya, by Demámbika, was governing at Muluvágil (Mulbágal) and seems to have come next to the throne, but there is some confusion in the history here. Deva Raya also had a son Mallanna Oḍeyar, by Mallayavve, who was governing in the west, at Honavar.

During the two last reigns the greater part of Karnáta and Telingána, with the coast of Kanara, had come under the Vijayanagar sway. To the north, the simultaneous origin of the Bahmani kingdom prevented an extension of territory in that direction. The rivalry between the Bahmani and Vijayanagar kingdoms led to a continual succession of wars and alliances between the two, many interesting details of which are recorded by Ferishta, but perhaps with too favourable a colouring, as might be expected, to the Muhammadan side of the picture.[1] Among the earliest incidents that passed between them the following is characteristic:—

[1] For convenience of reference the list of Bahmani Sultans is here given:—

Hasan Gangu, Alá-ud-Din ...	1347	Firoz Shah...	1397
Muhammad Shah...	1358	Ahmad Shah, Khán Khanán ...	1422
Mujáhid Shah	1375	Alá-ud-Din Shah...	1435
Dáud Shah	1378	Humáyun Shah	1457
Mahmud Shah	1378	Nizam Shah	1461
Ghiyás-ud-Din Shah	1397	Muhammad Shah...	1463
Shams-ud-Din Shah	1397	Mahmud Shah	1482

Hasan, the founder of the line, was a poor Afghan, a native of Delhi, who farmed a small piece of land belonging to a Brahman named Gangu, who was in favour at court. One day, while ploughing, Hasan accidentally found some hidden treasure against which the plough-share had struck, and at once informed his landlord of it. The latter was so struck by his tenant's honesty that he cast his horoscope, and

"One evening when the spring of the garden of mirth had infused the cheek of Muhammad Shah with the rosy tinge of delight, a band of musicians sang two verses of Amir Khusru in praise of kings, festivity and music. The Sultan was delighted beyond measure, and commanded to give the performers a draft for a gratuity on the treasury of the Roy of Beejanuggur" (a deliberate insult). The draft was signed and despatched. But "the Roy, haughty and proud of his independence, placed the presenter of the draft on an ass, and parading him through all the quarters of Beejanuggur, sent him back with every mark of contempt and derision." War naturally followed. The Raja captured the frontier fortress of Mudkal and put all the inhabitants to the sword, only one escaping to carry the tale. The Sultan swore that he would not rest till he had slain a hundred thousand of the infidels. A series of engagements took place, in which the Raja was worsted, and an indiscriminate massacre of men, women and children continued until the payment of the wretched draft was enforced. The cold-blooded slaughter of hosts of helpless human beings for so paltry a provocation, led the ambassadors of the Raja to propose that in any future wars the lives of unarmed inhabitants and prisoners should always be spared. This merciful provision was agreed to and the rule long after observed.

Coming down later, to the time of Deva Raja and Firoz Shah, shortly after the latter ascended the throne an invasion of his territories was made by the Vijayanagar king on the south and by other enemies on the north. Firoz, on marching to encounter Deva Raja, found the Krishna so swollen with the rains that he could not cross in the face of the opposing army. At this juncture a *kázi* offered to cross with a few friends and by some plot to assassinate either Deva Raja or his son, as he might find chance. He went, and joining himself to a party of dancing girls in the camp, obtained admission in the disguise of a woman to an entertainment given by the Raja's son. While performing a dance with a dagger in each hand, he seized an opportunity to plunge them into the prince's breast. His accomplices extinguished the lights, and in the confusion and darkness all made their escape. The Sultan, taking advantage of the alarm created in the Hindu camp, crossed with a select body of troops, and before sunrise was in a position to make an assault. The Hindus were panic stricken, and the Raja, filled with grief, made no resistance, but securing the body of his son, fled with all his forces. A treaty was at last concluded, fixing the common boundary of the two powers, and Deva Raja paid a sum equal to forty lakhs of rupees for the ransom of the prisoners.

foretold that he one day would be a king, requesting that when that should come to pass he might be made the minister. Hasan, in honour of his patron, took the name Gangu, and by the influence of the Brahman was advanced in various ways and appointed to a command with a jagir. He became a marked man, and when the measures of Muhammad Toghlak led to a rebellion, his talents placed him at the head of the revolt. He finally succeeded in establishing himself as ruler of the Dekhan, and fixed his capital at Kulbarga. He and his descendants styled themselves kings of the Bahmani (that is, Brahmani) dynasty, in gratitude to the Brahman who had first announced the fortune of their founder.

In 1406 another war took place, brought about as follows :—"There resided in the town of Mudkal a farmer, who was blessed with a daughter of such exquisite beauty that the Creator seemed to have united all his powers in making her perfect." Hearing of her beauty and accomplishments, Deva Raja resolved to marry her, and sent valuable presents to her and her parents by a Brahman. The parents were overjoyed at such unexpected good fortune, and displaying the rich gifts before the girl, showered on her their congratulations. But the beautiful virgin, to their great astonishment, refused to receive the gifts, and observed "that whoever entered the haram of Beejanuggur, was afterwards not permitted to see her nearest relations and friends ; and though they might be happy to sell her for worldly riches, yet she was too fond of her parents to submit to eternal absence from them even for all the splendour of the palace of Beejanuggur. This declaration was accompanied with affectionate tears which melted her parents ; who, rather than use force, dismissed the Brahman with all his gifts, and he returned, chagrined and disappointed, to Beejanuggur."

The royal lover now became mad for the possession of the girl, and resolved to obtain her by force. On the plea of making a tour, he went towards the Tungabhadra, which suddenly crossing with a select body of troops, he hastened by forced marches to Mudkal. In the excess of his passion he had omitted to let the parents of the girl know the object of the expedition. They, therefore, in common with all the country, fled on the approach of the army to the most distant parts for shelter. Foiled in their object, the troops returned in disgust, and committed depredations in the country through which they passed. Firoz Shah resolved to be revenged for this inroad on his territories. Unable to effect anything against the Raja's capital, he laid waste all the adjacent country, and the hostile camps remained in each other's presence for several months. At last a treaty was concluded, by which the Raja was to give his daughter in marriage to the Sultan, with the fort of Bankapur and a large sum of money.

"Preparations for celebrating the nuptials were made by both parties. For forty days communication was open between the city and the Sultan's camp. Both sides of the road were lined with shops and booths, in which the jugglers, drolls, dancers and mimics of Karnátaka displayed their feats and skill to amuse passengers." The bridegroom sent valuable presents to Vijayanagar, from which, after the expiration of seven days, the bride was brought forth with a rich portion and offerings from the Raja, to the Sultan's camp. What followed is thus described by Ferishta :—

"Dewul Roy having expressed a strong desire to see the Sultan, Firoz Shah, with great gallantry, agreed to visit him with his bride, as his father-in-law. A day being fixed, he with the bride proceeded to Beejanuggur. On the way he was met by Dewul Roy in great pomp. From the gate of the city to the palace, being a distance of nearly six miles, the road was spread with cloth of gold, velvet, satin, and other rich stuffs. The two princes rode on horseback together, between ranks of beautiful boys and girls, who waved plates of gold and silver flowers over their heads as they advanced, and then threw them to be gathered by the populace. After this

the inhabitants of the city made offerings, both men and women, according to their rank. After passing through a square directly in the centre of the city, the relations of Dewul Roy, who had lined the streets in crowds, made their obeisance and offerings, and joined the cavalcade on foot, marching before the princes. Upon their arrival at the palace gate the Sultan and Roy dismounted from their horses and ascended a splendid palanquin, set with valuable jewels, in which they were carried together to the apartments prepared for the reception of the bride and bridegroom ; when Dewul Roy took his leave, and retired to his own palace. The Sultan, after being treated with royal magnificence for three days, took his leave of the Roy, who pressed upon him richer presents than before given, and attended him four miles on his way, when he returned to the city. Sultan Firoz Shah was enraged at his not going with him to his camp, and said to Meer Fuzzul Oollah that he would one day have revenge for the affront offered him by such neglect. This declaration being told to Dewul Roy, he made some insolent remarks, so that, notwithstanding the connection of family, their hatred was not calmed." The girl who had been the innocent cause of the war was sent for and married to the Sultan's son.

In 1417 there was war again, in which Deva Raja inflicted a severe defeat upon the Sultan. A great slaughter of the Muhammadans followed, and the dominions of Bijapur were laid waste with all the treasured resentment of many years. These reverses killed Firoz Shah. Ahmed Shah, his successor, resolved to take revenge on the Hindus, who had now been driven back. He desolated the possessions of Vijayanagar, slaughtering women and children without mercy. Whenever the number of slain came to twenty thousand, he halted for three days and made a feast. The Hindus, in desperation, formed a plot against him, from which he escaped by a hair's-breadth. Terms were then agreed to, and he retired to his own country, the capital of which he shortly removed from Kulbarga to Bidar, a hundred miles to the north.

The further progress of events in that country need be noticed only so far as to state that the Bahmani empire was dismembered at the end of the fifteenth century, and broken up into the five states of Bijapur, Ahmadnagar, Golkonda, Berar, and Bidar. The first of these, with which our history will be principally concerned, was founded in 1489.

To return to Vijayanagar, the following extracts from the interesting account by Abdur Razzak,[1] who visited that capital as ambassador from Persia in 1441, during the reign of Deva Ráya, give a lofty idea of the wealth and magnificence of the empire :—

From our former relation and well-adjusted narrative, well-informed

[1] *Matláu-s Sádain*, Sir H. Elliot's *Hist. Ind.*, Vol. IV.

readers will have ascertained that the writer Abdu-r-razzak had arrived at the city of Bijanagar. There he saw a city exceedingly large and populous, and a king of great power and dominion, whose kingdom extended from the borders of Sarandip to those of Kulbarga, and from Bengal to Malibar, a space of more than 1,000 *parasangs*. The country is for the most part well cultivated and fertile, and about three hundred good seaports belong to it. There are more than 1,000 elephants, lofty as the hills and gigantic as demons. The army consists of eleven *lacs* of men. In the whole of Hindustan there is no *Rái* more absolute than himself, under which denomination the kings of that country are known. The Brahmans are held by him in higher estimation than all other men.

The city of Bijanagar is such that eye has not seen nor ear heard of any place resembling it upon the whole earth, It is so built that it has seven fortified walls, one within the other. Beyond the circuit of the outer wall there is an esplanade, extending for about fifty yards, in which stones are fixed near one another to the height of a man ; one-half buried firmly in the earth, and the other half rises above it, so that neither foot nor horse. however bold, can advance with facility near the outer wall. The fortress is in the form of a circle, situated on the top of a hill, and is made of stone and mortar, with strong gates, where guards are always posted, who are very diligent in the collection of taxes. . . .

The seventh fortress is placed in the centre of the others ; in it is situated the palace of the king. From the northern gate of the outer fortress to the southern is a distance of two statute *parasangs*, and the same with respect to the distance between the eastern and western gates. Between the first, second and third walls there are cultivated fields, gardens and houses. From the third to the seventh fortress shops and bazars are closely crowded together. By the palace of the king there are four bazars, situated opposite to one another. That which lies to the north is the imperial palace, or abode of the Rái. At the head of each bazar there is a lofty arcade and magnificent gallery, but the palace of the king is loftier than all of them. The bazars are very broad and long, so that the sellers of flowers, notwithstanding that they place high stands before their shops, are yet able to sell flowers from both sides. Sweet-scented flowers are always procurable fresh in that city, and they are considered as even necessary sustenance, seeing that without them they could not exist. The tradesmen of each separate guild or craft have their shops close to one another. The jewellers sell their rubies and pearls and diamonds and emeralds openly in the bazar. . . .

This country is so well populated that it is impossible in a reasonable space to convey an idea of it. In the king's treasury there are chambers with excavations in them filled with molten gold, forming one mass. All the inhabitants of the country, whether high or low, even down to the artificers of the bazar, wear jewels and gilt ornaments in their ears and around their necks, arms, wrists and fingers.

Deva Ráya II is specially distinguished as Gaja-bénṭikára, the

elephant hunter, and an interesting account is given by Abdur Razzak of the mode of capture and the treatment of elephants at Vijayanagar at that time. One inscription describes the king as having received the throne from his elder sister. This might be the princess married into the Bahmani family.

Nothing of importance is known of the reigns of Mallikárjuna and Virúpáksha. The former had as his minister Timmanna-dannáyaka, lord of Nágamangala, who had held the same office under his father. Mallikárjuna is described as being at Penugonda, along with him, engaged in the affairs of Narasinga's kingdom. This may therefore have been a powerful chief whose possessions had escheated to the crown.

With Narasa or Narsingha the line was changed. According to some accounts, Virúpáksha, having no issue, raised one of his slaves named Sinhama to the throne, who took the title of Prauḍha Deva and ruled four years. His son, Vira Narasimha, succeeded and ruled but two years, when, he also being childless, gave his signet to his falconer Narasa. According to other accounts, Narasa was a powerful chief of Telingana, who possessed himself of the greater part of the Vijayanagar territory. But an inscription at Shimoga brings him from Tulava (South Kanara), and states that he was of the Yadu line, of the family of Krishna Rava, and the son of Is'vara and Bukkama. He is said to have crossed over the Kaveri when in flood, taken an unnamed enemy prisoner alive, conquered his country, and founded Seringapatam as a capital. His conquests extended over the whole of the south. By Tippákshi or Tippáji and Nágala Devi, he had two sons, Vira Narasimha and Krishna Ráya, who in turn succeeded him.

This does not agree with the traditional account, according to which Krishna Ráya was an illegitimate son, by Nágámba, a friend or attendant of the queen. He was so superior as a boy to Vira Narasimha that Tippámba, the mother of the latter, became jealous, and prevailed on the king to have him put to death. But the prime minister concealed the prince, reporting that the orders had been obeyed. In his last illness the king was much afflicted for the death of his son, on which the minister produced the prince, and Krishna Deva was declared the heir and successor to the throne. Vira Narasimha, it is added, died of vexation on his brother being acknowledged Raja. But there is evidence that Narasimha ruled for some years, and both he and his successor were distinguished for the munificence of their gifts to sacred places. Narasimha's titles were *medini-mísara gaṇḍa* and *kaṭhári-sáluva.*

Krishna Ráya was one of the most powerful and distinguished

monarchs of the Vijayanagar line. About 1520 the Muhammadans sustained a severe defeat from his armies, in consequence of which a good understanding prevailed between the courts of Vijayanagar and Bijapur for a considerable period. He not only restored the kingdom to its former limits, but extended them in every direction. He kept possession of all the country up to the Krishna; eastwards he captured Orangal and ascended to Cuttack, where he married the daughter of the Raja as the bond of peace; while westwards his conquests extended up to Salsette. He was also a great patron of Sanskrit and Telugu literature. Eight distinguished poets, called the *ashṭa-dig-gaja*, were maintained at his court, the principal of whom was Appaya Dikshita.

The Hindu traditions represent Krishna Ráya as conducting his affairs, both in peace and war, in person. But they acknowledge that he owed much to the Brahman minister of his father, who had saved his life, and who continued to be his minister until his death, three years preceding that of the Raja. His name was Timma Raja, the Hem raj of the Muhammadan historians. At no period probably in the history of the south did any of its political divisions equal in extent and power that of Vijayanagar in the reign of Krishna Ráya. From this time for a long period we shall meet with continual anarchy and successive revolutions.

Edoardo Barbessa, who travelled in India in 1516, describes the city of Vijayanagar as "of great extent, highly populous, and the seat of an active commerce in country diamonds, rubies from Pegu, silks of China and Alexandria, and cinnabar, camphor, musk, pepper and sandal from Malabar." The palaces of the king and his ministers, and the temples were "stately buildings of stone," but the dwellings of the common people were "hovels of straw and mud."

According to the received account, Krishna Ráya had no legitimate male issue, and Achyuta Ráya, his half-brother by Obámbika, was thus the nearest heir. The latter being absent at the time, Krishna Ráya, on his death-bed, placed an infant named Sadásiva on the throne, under the guardianship of his son-in-law Rama Raja, who was the son, as is supposed, of the deceased minister Timma Raja. But Achyuta soon returned and assumed the government, and on his death Sadásiva succeeded, under the control of Rama Raja as before arranged. Sadásiva was apparently the son of Ranga, a deceased elder brother of Achyuta by the same mother: on the other hand, he is expressly stated[1] to be the son of Achyuta Ráya.

As long as Rama Raja was alive, Sadásiva was only the nominal sovereign, and little more than a tool in the hands of the minister. On

[1] *Mys. Ins.*, S. S. 192.

one occasion it is stated that, aided by his maternal uncle and some of the nobles, he conspired against the minister, who was forced to resign, but allowed to live in the capital. Tirumala Raja, the uncle, then assumed the whole power, having, it is said, murdered the prince. If this were the case, several puppet rajas may have been successively set up under the name of Sadásiva Ráya, for grants in that name continue down to 1574. Tirumala Raja conducted himself so tyrannically that the chiefs rose against him, but he called in the assistance of the Sultan Ibrahim Adil Shah and put them down. No sooner, however, had the Muhammadans retired than the nobles, with Rama Raja at their head, again rebelled, and shut up the usurper in his palace ; where, finding his fortunes desperate, he destroyed himself. Rama Raja now seized the supreme power, and being an able and powerful ruler, not only established his influence over all the kingdoms of the south, but made encroachments on the Muhammadan states which they were powerless to prevent, and on one occasion even assisted Bijapur against Ahmednagar. His arrogance, however, was the prelude to his ruin.

The four Muhammadan principalities of the Dekhan resolved to combine in an attack upon Vijayanagar, and in 1564 the allied armies of Bijapur, Golkonda, Ahmednagar and Bidar assembled at Bijapur, prepared to march south. Rama Raja thought lightly of the impending danger, but took measures for the defence of his territory by sending his brother, Tirumala Raja, with a strong force to occupy the fords of the Krishna ; another division followed under his brother Venkatádri, while he himself brought up the rear with the main body of the army. The enemy, on arriving at the river, found the defending force entrenched on the right bank, behind earthworks mounted with cannon, and in such a position as to effectually bar the passage of the river. As this was the only point where their troops could safely cross, the allies resolved by a feint to draw their opponents out of the position. They accordingly marched along the river as if to attempt a passage at a different point, and were followed on the other side by the Hindu army. But on the third night they suddenly decamped, and gaining the now undefended ford, succeeded in carrying over their whole army, and marched against Rama Raja. The latter, though surprised at their activity, was not alarmed, but summoned his brothers to join him.

The 25th of January, 1565, saw the two armies confronting each other in battle array on the since memorable field of Talikota, about ten miles south of the Krishna, near Raichor. The Musalman right was commanded by Ali Adil Shah of Bijapur, the left by Ali Barid Shah of Bidar and Ibrahim Kutb Shah of Golkonda, the centre by Husen Nizam Shah of Ahmednagar. Rama Raja entrusted his left to

his brother Tirumala Raja, his right to his other brother Venkatádri, and himself commanded in his centre. The allies guarded their front with a line of cannon fastened together with strong chains and ropes. The Hindu front was protected by a large number of war elephants, as well as cannon. The battle opened with rapid discharges of artillery and rockets from the Hindu side. A general action ensued, accompanied with great slaughter. The Hindu right and left drove back both wings of the Musalman allies, but their centre was unbroken. At this moment a war elephant, becoming ungovernable, rushed madly about and overturned the litter of Rama Raja. Taking advantage of the confusion, some Muhammadan gunners rushed in, and before he could recover himself, seized Rama Raja and carried him off. His head was instantly struck off and paraded on the point of a lance in sight of both armies. The Hindus, on seeing their leader was slain, gave up all for lost and fled in every direction, closely pursued by the enemy. The slaughter was immense, and the booty sufficient to enrich every private of the victorious army.[1] The sultans marched to Anegundi, the troops entered Vijayanagar, and plundered and destroyed the capital, committing all manner of excess.

This terrible and decisive defeat broke up the Vijayanagar empire, but the mutual jealousies of the allies prevented either of them enlarging his kingdom by appropriating any of the conquered territory. A year after the battle, Tirumala Raja, the brother of Rama Raja, returned to the capital. But he found the attempt to restore it hopeless, and in 1567 retired to Penugonda. Venkatádri, the other brother, established himself at Chandragiri.

Cæsar Frederike visited the city of Vijayanagar two years after the battle. He states that Ram Rai perished through the treachery of two Musalman generals in his service, who turned against him in the middle of the battle. The Musalmans spent six months in plundering the city, searching in all directions for buried money. The houses were still standing, but they were empty. The court had moved from Vijayanagar to Penugonda, which was eight days' journey to the south. The inhabitants had disappeared and gone elsewhere. The surrounding country was so infested with thieves that he was compelled to stay six months longer at Vijayanagar than he intended. When at last he set out for Goa, he was attacked every day, and had to pay a ransom on each occasion.

He thus describes the palace :—" I have seen many kings' courts, yet have never seen anything to compare with the royal palace of Bijianugger, which

[1] Such is Ferishta's account. The Hindu account says that the divisions of Kutb Shah and Nizam Shah were routed, and retreated in confusion, covered by the armies of Adil Shah and Barid Shah. The Hindus, considering the engagement over and the enemy annihilated, gave themselves up to rejoicing and festivity, and were surprised in their encampment.

hath nine gates. First, when you go into that part where the king lodged, there are five great gates, kept by Captains and Soldiers. Within these are four lesser gates, which are kept by porters, and through these you enter into a very fair court at the end." He describes the city as being twenty-four miles round, enclosing several hills. The ordinary dwellings had earthen walls, but the three palaces and the pagodas were all built of fine marble.

Grants in the name of Sadás'iva, the nominal sovereign, continued to be made as late as 1574, but Tirumala Rája also made many in his own name. S'rí Ranga, the son of Tirumala by Vengalámba, succeeded to the throne. In 1577 the Musalmans attacked Penugonda, but were defeated and driven back by the king's son-in-law, Jagadeva Ráya, chief of Channapatna, who was rewarded with a large accession to his possessions in Mysore. Venkatapati Ráya, in 1585, removed the capital to Chandragiri (North Arcot district), and ruled there and at Vellore with some show of power. He died in 1614, and the traveller Floris says his three wives burned themselves on his funeral pyre. Rája Woḍeyar of Mysore had already seized Seringapatam in 1610, and thrown off his allegiance. The other feudatories, like Sivappa Náyak of Bednur, began to imitate his example, and the Vijayanagar power was now virtually at an end. From S'rí Ranga Ráya II the English obtained the grant of the settlement of Madras in 1640. Six years after, Chandragiri and Chingalput, his occasional residence and nominal capitals, being taken by the forces of Golkonda, he fled to the protection of Sivappa Náyak of Bednur, who gave him the government of Sakkarepatna (Kadur district), and even adventured to besiege Seringapatam under the pretence of restoring him. A member of the family, named Rama Raja, established himself at Anegundi, two miles from the ancient capital, and continued the line for seven generations, till 1776, when Tipu Sultan overran the whole country, dispossessed Timmappa, the reigning chief, and burnt the town of Anegundi and its suburbs.

The Palegars.—During the fifteenth and sixteenth centuries, the Vijayanagar kings had bestowed on or confirmed to vassal chiefs, bearing various titles, sundry tracts in Mysore, on the condition of payment of tribute and rendering of military service. Those in the northern parts were directly controlled from the capital. The southern chiefs were placed under a viceroy termed the S'rí Ranga Ráyal, whose seat of government was at Seringapatam. After the dissolution of the empire which followed on the battle of Talikota, although a nominal allegiance continued to be paid to the representative of the State at Penugonda and to the viceroy at Seringapatam, such of the chiefs as

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had the power gradually broke loose of control and declared their independence. An account of each of these Pálegar families will be found in connection with the localities which formed their respective estates. It will be sufficient, therefore, here, to simply mention the more important. Among these were:—in the north, the Náyaks of Bednur, Basavapatna and Chitaldroog; on the west, the Náyaks of Balam; in the centre, the Náyaks of Hágalváḍi, and the Gauḍas of Yelahanka and Ballapur; on the east, the Gauḍa of Sugaṭúr: on the south, the Woḍeyars of Mysore, Kaḷale, Ummatur, Yelandur, and others.

In 1573 the Bijapur and Ahmednagar rulers came to a mutual agreement to extend their conquests in such different directions as not to interfere with one another. The Bijapur line of conquest was to the south. Adoni having been captured, and the western coast regions from Goa down to Barkalur overrun, an attempt was made in 1577 on Penugonda. But it found a most gallant defender, as before stated, in Jagadeva Ráya, the king's son-in-law. Every attack was repelled, and the Bijapur army forced to raise the siege and retire. For this brilliant service Jagadeva was rewarded by a grant of a territory which extended across Mysore, from Báramahál—the previous possession of his family—on the east, to the Western Ghats on the west. He fixed his capital at Channapatna (Bangalore district). Kankanhalli and Nagamangala were two of the most important towns in his territory, which also included Periyapatna on the west and Harnhalli and Banawar on the north, while a long arm reached even to Hole Honnur.

About the same period, Timme Gauḍa of Sugatúr rendered some important military service, for which he received the title of Chikka Ráya, with a grant of territory in the southern half of the Kolar district, including Hoskote westwards and Punganur eastwards.

Meanwhile, in the south, the Rajas of Mysore, whose history will be given in detail further on, had been gradually subduing all the lesser chiefs: until in 1610 they gained Seringapatam, ousting the effete viceroy of Vijayanagar, and became the dominant power in that part of the country. In 1630 they took Channapatna, and Jagadeva Ráya's dominions were thus absorbed into the Mysore State.

This brief sketch of the principal changes which took place in the seventy years following the battle of Talikota will serve to show how matters stood, and the several divisions of the country, in 1636, when the Bijapur armies successfully invaded Mysore and established the government of that State over the Carnatic Balaghat.

Bijapur.—This State is more properly called Vijayapur, but as a Muhammadan kingdom, and to distinguish it from Vijayanagar, the

Muhammadan form of the name has been retained. The founder of the kingdom was Yusuf Adil Shah, after whom his descendants were called the Adil Shahi kings. He is stated to have been a son of the Ottoman Sultan Amurath or Murad, and brother of Muhammad the Great, the conqueror of Constantinople. On the accession of the latter to the Turkish throne in 1450, Yusuf, by the contrivance of his mother, escaped being put to death with the rest of his brothers, and was by her means conveyed to Persia. Being obliged to fly from Persia at the age of sixteen on account of some suspicion of his birth, he was inveigled to the Bahmani court and there sold as a slave. He gradually rose into favour, was entrusted with the command of a body of horse and a provincial government. He became the head of the foreign or Shiah party, between which and the Dakhani or Sunni party there was a continual contest for power. When the latter in the reign of Mahmud gained an ascendancy, Yusuf Adil retired to his government of Bijapur, and in 1489 took the royal title. He opposed the usurper of the Bahmani kingdom, put down the neighbouring chiefs, who like him were endeavouring to assert their independence, and was successful in meeting the attacks of the Vijayanagar raja. The Bahmani kingdom was eventually partitioned between him and the other new kings that arose about the same time in the Dekhan.

The following is the succession of the Adil Shahi kings:—

Yusuf Adil Shah	1489	Ibrahim Adil Shah ...	1579
Ismail Adil Shah	1510	Muhammad Adil Shah ...	1626
Mallu Adil Shah	1534	Ali Adil Shah	1660
Ibrahim Adil Snah	1535	Sikandar Adil Shah ...	1672
Ali Adil Shah	1557		

The territory of Bijapur extended from the Nira to the Tungabhadra, and from the Bhima to the sea. South of the Tungabhadra, it owned Adoni and perhaps Nandyal. The limits of its western boundary were Bankot and cape Ramas. Between this power and Vijayanagar there were constant collisions, until in 1565 the battle of Talikota terminated the power of the latter. In 1577, as we have already seen, a raid was made into the conquered territory, but repelled by the defence of Jagadeva Ráya at Penugonda.

In 1637 a more formidable invasion took place. The Mughals had taken Daulatabad in 1634, and Aurangzeb was appointed viceroy of the Dekhan; but the contests with the Mughal power were shortly brought to a close for the time by the treaty which extinguished the State of Ahmednagar and made Bijapur tributary to Delhi. The Bijapur arms were now directed to the south, under Ran-dulha Khan; with whom Shahji, father of the famous Sivaji, was sent as second

in command, with a promise of a jágir in the territories to be conquered.

The course of this invasion[1] was by the open country of Bankapur, Harihar, Basvapatna and Tarikere, up to the woods of Bednur, the whole of which was overrun. The Bednur chief was besieged in Kavale-durga but bought off the enemy. An attempt was next made on Seringapatam. A breach was effected, but the Mysoreans repulsed the general assault with great slaughter, and the enemy was not only compelled to raise the siege but harassed in his retreat by successive attacks, in which, adds Wilks, the Raja obtained considerable booty. The invading army retired to the north of Melukote and then turned east. Kempe Gauḍa, representative of the Yelahanka family, who had by this time grown into a considerable chieftain, holding possession of Bangalore and Magadi, with the impregnable hill fortress of Savandurga, was next attacked, and Bangalore captured from him in 1638. The possessions of the Chikka Ráya, namely, Hoskote and all the present Kolar District east of it, were then seized, in 1639, and the victorious army, passing below the Ghats, took Vellore and S'enji. Returning to the tableland, Dod Ballapur, Sira and all the south of the Chitaldroog district fell to Bijapur in 1644.

By this time the conquests were complete, and a Province under the designation of Carnatic Bijapur Balaghat was formed out of the districts of Bangalore, Hoskote, Kolar, Doḍ Ballapur and Sira; and bestowed as a jágir on Shahji, who was also governor of the conquests below the Ghats, called Carnatic Bijapur Payanghat. He resided at first at Bangalore, but subsequently, when not engaged in military expeditions, lived sometimes at Kolar and sometimes at Doḍ Ballapur.

The policy of the invaders was, while taking possession of the capital town, and administering the revenues of each principality, to grant the ousted chief an estate in some less productive part of his territory. This resulted in bringing under cultivation and attracting population to the more neglected tracts of the country. Thus Basavapatna and its possessions being retained, Tarikere was given to the palegar; Bangalore was taken but Magadi left to Kempe Gauḍa; similarly Hoskote was taken and Anekal granted; Kolar was taken and Punganur granted; Sira was taken and Ratnagiri granted.

Shahji was one of the most prominent characters of his day in India. A sketch of his remarkable career is given in the history of the Bangalore

[1] The palegar of Basvapatna or Tarikere is charged with having invited the Bijapur Sultan to invade the country, in order to revenge himself for an insult received from the palegar of Ratnagiri or Sira, arising out of an obscene jest and a coarse and filthy practical joke which will not admit of mention.

district. Under him the Mahratta element was largely introduced into the north of Mysore, as well as into the Tanjore and other districts which he conquered below the Ghats. The Mahrattas, or Maha-Rattas, in whom we may recognize the descendants of a people that have already appeared more than once in our historical review, after the overthrow of the Yádava kingdom of Devagiri, had been subjects first of the Bahmani and subsequently of the Ahmednagar and Bijapur kingdoms. Their influence was much increased by a remarkable change introduced, chiefly for sectarian reasons, by Ibrahim Adil Shah, the fourth king of Bijapur, who came to the throne in 1535. Previous to his reign all the revenue and official accounts had been kept in Persian. But he recognized Mahratti or Hindvi as the official language of the revenue accountants, who were, to a great extent, Brahmans. He also employed large bodies of Mahratta cavalry called Bargeer. They differed from Silahdars in being provided with horses by the State. The rise of the Mahratta power in the person of Sivaji, the son of Shahji, and the struggles of that race for empire, have been often recorded. We shall meet with them frequently in the remaining portion of our history.

The possessions of Shahji in Mysore and Tanjore were governed after his death, which occurred in 1664, by his son Venkoji, or Ekoji. But Sivaji, the only surviving son by the first marriage, resolved to lay claim to a half share. For this purpose, in which he was encouraged by Raghunath Narayan, who from being the minister first of Shahji and then of Venkoji, had now come over to Sivaji, he made an expedition into the Carnatic in 1677. Before entering upon it, Sivaji paid his celebrated visit to the temple of Párvati at S'ris'aila, where he spent twelve days in penance, and when about in his enthusiasm to sacrifice himself to the deity, was saved, it is said, by the interposition of the goddess Bhaváni. He then joined the army and, leaving the heavy part to besiege Vellore, pushed on with the remainder, consisting principally of cavalry, and gained possession of S'enji. He induced Venkoji, who resided at Tanjore, to meet him at Trivadi for the purpose of discussing matters, but could not persuade him to give up half the property. Sivaji thought to make him prisoner and compel him, but refrained. He returned to Vellore, which had surrendered, took Carnatic Ghur, Arni and other forts, and overran all the jágir districts, levying contributions or plundering. Affairs at Golkonda now obliged him to hasten thither, Bellary being captured on the way. Venkoji took the opportunity to attack the troops left in the Carnatic. Sivaji, on hearing of it, wrote a remarkable letter[1] to his brother, full of

[1] *See* Grant Duff, *Hist. Mahr.*, I. 211.

good sense and injunctions to union and peace, which won over Venkoji. He agreed to pay a large sum of money, to divide their father's jewels, and to share the revenues with his brother. On these conditions Sivaji allowed him to retain Tanjore, and restored the jágir districts. This was in 1678. In 1680 Sivaji died.

The Mughals.—In 1684 the Mughal arms, under Aurangzeb, now seated on the throne with the title of Alamgir, were once more directed to the Dekhan for the purpose of crushing the Mahrattas and subjugating the Pathan states of Bijapur and Golkonda. Bijapur was taken in 1687, Golkonda in 1688. Flying columns were sent out after each of these captures to secure the dependent districts south of the Tungabhadra.

A new Province was thus formed in 1687, with Sira as its capital, composed of the seven parganas of Basvapatna, Budihal, Sira, Penugonda, Doḍ Ballapur, Hoskote and Kolar; and having Harpanhalli, Kondarpi, Anegundi, Bednur, Chitaldroog and Mysore as tributary states. Bangalore, which had been seized, was at the same time sold to the Raja of Mysore for three lakhs of rupees, the sum for which he had just previously agreed to buy it of Venkoji; who, finding it too far from the seat of his government to be effectually protected, had offered it for sale. Khasim Khan, with the designation of Faujdar Divan, was the first governor of the Province of Sira. Its annals are elsewhere given. It continued a Mughal possession till 1757.

Mysore Rajas.—Our attention will now be directed to the south, to the history of the royal family of Mysore. Their origin is traced to the heroes of a chivalrous exploit, Vijaya and Krishna, two young Kshatriyas of Yádava descent, who, according to tradition, had left Dváraka, in Gujarat, with the view of establishing themselves in the south. On arriving at Hadi-náḍ, or Hada-náḍ (called Hadana by Wilks, but now known as Hadináru), a few miles south east of the present city of Mysore, they learned that the chief of the place had wandered away in a state of mental derangement; and that the neighbouring chief of Kárugahalli, who was of inferior caste, taking advantage of the defenceless condition of the family, had demanded the only daughter of the house in marriage. To this a consent had been given under compulsion, and arrangements unwillingly made for the ceremony. The two brothers espoused the cause of the distressed maiden, and having secreted themselves with some followers, fell upon the chief and his retinue while seated at the banquet, and slew them. Marching at once on Kárugahalli, they surprised it, and returned in triumph to Hadanád. The girl became the willing bride of Vijaya, who took the

title of Oḍeyar, or Woḍeyar,[1] and assumed the government of Hadanád and Karugáhalli ; adopting at the same time the religion of the Jangamas, or Lingavantas.

The following is the succession of the Mysore Rájas, according to annals compiled in the palace, Vijaya being here called Yadu Ráya :—

Yadu Ráya, Vijaya	1399-1423
Hire Beṭṭada Cháma-Rája Woḍeyar (I)	1423–1458
Timma-Rája Woḍeyar (I)	1458–1478
Hire Cháma-Rája Woḍeyar (II), A'rberal[2]	1478–1513
Beṭṭada Cháma-Rája Woḍeyar (III)	1513–1552
Timma-Rája Woḍeyar (II), Appanna	1552–1571
Bóla Cháma-Rája Woḍeyar (IV)	1571-1576
Beṭṭada Cháma-Rája Woḍeyar (V)	1576–1578
Rája Woḍeyar (I)	1578–1617
Cháma-Rája Woḍeyar (VI)	1617–1637
Immaḍi Rája Woḍeyar (II)	1637–1638
Ranadhíra Kanthírava-Narasa-Rája Woḍeyar	1638–1659
Doḍḍa Deva-Rája Woḍeyar	1659-1672
Chikka Deva-Rája Woḍeyar	1672–1704
Kanthírava Woḍeyar, Múkarasu[3]	1704–1713
Doḍḍa Krishna-Rája Woḍeyar (I)	1713-1731
Cháma-Rája Woḍeyar (VII)	1731–1734
Krishna-Rája Woḍeyar (II)	1734–1766
Nanja-Rája Woḍeyar	1766–1770
Beṭṭada Cháma-Rája Woḍeyar (VIII)	1770–1776
Khása Cháma-Rája Woḍeyar (IX)	1776–1796
Krishna-Rája Woḍeyar (III)	1799–1868
Cháma-Rájendra Woḍeyar (X)	1868-1894
Krishna-Rája Woḍeyar (IV)	1895

Yadu Ráya, or Vijaya, is said to have been eleventh in descent from Yaduvíra, of the A'treya-gótra and As'valáyana-sútra. But of the early period no annals have been preserved until the time of Cháma-Rája III. He, during his lifetime, made a partition of his dominions between his three sons. To Timma-Rája, or Appanna, he gave Hemmanhalli, to Krishna-Rája he gave Kembala, and to Cháma-Rája IV, surnamed Ból or Bald,[4] he gave Mysore. No male heir surviving to either of the elder brothers, the succession was continued in the junior or Mysore branch. With Krishna-Rája I the direct descent ended. Cháma-Rája VII, a member of the Hemmanhalli family, was next elected, but eventually deposed by the daḷaváyi[5] Deva-Ráj, and the minister Nanja-Ráj. He died a prisoner at Kabbáldurga in 1734. Chikka or

[1] Oḍeyar, Woḍeyar, or Waḍeyar, is the plural and honorific form of Oḍeya, a Kannaḍa word meaning lord, master. Wilks states that it indicated, at the period of which we are writing, the governor of a small district, generally of thirty-three villages. But we find it applied, in the Tamil form Uḍaiyár, to the Chola kings as far back as the eleventh century, and in the Kannaḍa form, Woḍeyar, to the Vijayanagar kings from the beginning of their rule. Vaḍér, a modification of the word, is the title of respect by which Jangama priests are addressed.

[2] Six-fingered.

[3] Dumb king ; he was born deaf and dumb.

[4] Owing, it is said, to a stroke of lightning.

[5] The itle of the chief officer of the state, who combined the functions of a general and a minister. It is derived from *daḷa*, Kan. for army, and *váyi* or *báyi*, mouth : the mouthpiece of the army. The office was mostly hereditary.

Immadi Krishna-Rája II, of Kenchengod, a younger and distant branch, was put on the throne in 1734, and died in 1766. His eldest son, Nanja-Rája, was directed by Haidar to be installed, but finding him not sufficiently subservient, Haidar turned him out of the palace in 1767, and took all control into his own hands. Nanja-Rája was strangled in 1770, being nominally succeeded by his brother Cháma-Rája VIII, who died childless in 1775. Cháma-Rája IX, son of Devaraj Arasu of Arkotár, a member of the Kárugahalli family, was then selected at random by Haidar. He died in 1796, and Tipu appointed no successor. But the real rulers during this period were:—

Haidar Ali Khan	1761–1782
Tipu Sultan...	1782–1799

On the fall of Seringapatam and death of Tipu, the British Government restored the Hindu raj and placed on the throne Krishna-Rája III, the son of the last-named Cháma-Rája. Owing to misrule he was deposed in 1831, but in 1867, a year before his death, his adoption was recognized of Cháma-Rájendra X (third son of Krishna Arasu, of the Bettadakote family), who succeeded him, being placed on the throne on attaining his majority in 1881. He died at the close of 1894, and his eldest son, Krishna-Rája IV, now a minor, has been installed as his successor.

At what period Mysore (properly Mahish-úru, buffalo town[1]) acquired that name is uncertain. Reasons have been given for supposing that it may have been known by that designation before the Christian era. The vulgar name of the place when Cháma-Rája the Bald received it as his portion was Puragadi, but for the last four centuries Mysore (Mahishúr) has been the common name of the fort and town originally erected or repaired by Hire Cháma-Rája the Bald.

The fatal disaster which befell the Vijayanagar empire on the field of Talikota in 1565 diminished the influence of its viceroy at Seringapatam. We accordingly find this Cháma-Rája evading the payment of the revenue or tribute due by him, and obtaining permission to erect some works, probably barriers, on the pretext that the wild hogs destroyed the crops and disabled him from paying the tribute. The works were, however, no sooner erected than the collectors of the royal dues were expelled. The imbecile viceroy attempted shortly after to seize Cháma-Rája while paying his devotions at the temple of Ranganátha, at Seringapatam. But he received warning of the plot and

[1] So called with reference to Mahishásura, the minotaur or buffalo-headed monster whose destruction is the most noted exploit of Chámundi, under which name the consort of Siva, the tutelary goddess of the Mysore Rajas, is worshipped on the hill near the capital.

escaped, and continued to evade all the demands of the viceroy with impunity.

Beṭṭada Cháma-Rája Woḍeyar, who succeeded, was not long on the throne. Though brave, he had no capacity for government, and his younger brother, Rája Woḍeyar, was shortly raised to the throne by the elders.[1] During his reign occurred one of the most important events in the annals of the Mysore house, the acquisition of Seringapatam. By what means this was effected is not known with certainty; but in 1610 the aged viceroy, Tirumala Rája, retired to Talkad, where he shortly after died, and on his retirement Rája Woḍeyar took possession of Seringapatam and transferred thither the seat of government. At the same time the religion of Vishnu was adopted by the court.

Rája Woḍeyar extended the possessions of his family over all the south of the present Mysore district, and captured several places towards the north from Jagadeva Ráya. "His rule was remarkable for the rigour and severity which he exercised towards the subordinate Woḍeyars, and his indulgence towards the ryots. The Woḍeyars were generally dispossessed and kept in confinement, on a scanty allowance, at the seat of government; and it was the policy of Rája Woḍeyar to reconcile the ryots to the change by exacting from them no larger sums than they had formerly paid."

All the sons being dead, Cháma-Rája, a grandson, succeeded. By the capture of Channapatna, in 1630, he absorbed the territories of Jagadeva Ráya into the Mysore State, and completed what remained of conquest in the south. He pursued the same policy as his predecessor.

Immaḍi Rája, who came next, was a posthumous son of Rája Woḍeyar. He was shortly poisoned by the daḷaváyi, and Kanṭhirava Narasa Rája placed on the throne. He was the son of the gallant and generous Beṭṭada Cháma-Rája, who had been superseded by his younger brother. The daḷaváyi thought to find him as forbearing and unambitious as his father. But he had already, when living in obscurity, given an evidence of his emulous and chivalric spirit. Hearing of a celebrated champion athlete at Trichinopoly who had overcome all opponents, he went there in disguise, and defeated and slew him in the presence of the whole court. Declining all honours for the feat, he quietly slipped away at night and returned home. Soon after his installation at Mysore, where that ceremony continued to be performed, he learned of the means by which his predecessor had been removed, and had the minister assassinated.[2]

[1] Many noble and interesting traits of the characters of the two brothers, and their mutual consideration, are recorded in Wilks.

[2] The two peons, or foot-soldiers, who did the deed scaled the wall of the minister's

The year after his accession, he had to defend Seringapatam against the attack of the Bijapur forces under Ran-dulha Khan; and, as already related, succeeded in effectually repelling the invader. He subsequently carried his conquests over many districts to the south, taking Danaikankote, Satyamangala and other places from the Náyak of Madura. Westwards, Arkalgud and Bettadpur were captured. Northwards, he took Hosur (now in Salem), and at Yelahanka inflicted a severe defeat on Kempe Gauḍa of Magadi, levying a large contribution on him. With the booty obtained in his various expeditions, and the heavy tribute which from motives of policy he imposed on the gauḍas or heads of villages in order to reduce their power, he improved and enlarged the fortifications of Seringapatam, and endowed the principal temples. He assumed more of royal state in his court, and was the first to establish a mint, at which were coined the Kanṭhi Ráya huṇs and fanams called after him, which continued to be the current national money until the Muhammadan usurpation.

He died without issue, and of the possible claimants to the throne the most suitable were a grandson and a great-grandson of Bóla Cháma-Rája, both about thirty-two years of age. The former, though of a junior branch, was selected, and is known as Doḍḍa Deva Rája; the latter, afterwards Chikka Deva Rája, was, with his father, placed in confinement at Hangala. It was during Doḍḍa Deva Rája's reign that Srí Ranga Ráya, the last representative of Vijayanagar, fled for refuge to Bednur. Sivappa Náyak, who was the *de facto* ruler of that state, entered upon a considerable range of conquests southwards under pretence of establishing the royal line, and appeared before Seringapatam with a large force. He was, however, compelled to retreat, and the Mysore armies before long overran Sakkarepatna, Hassan, and other places, with the government of which Srí Ranga Rája had been invested by Sivappa Náyak. The Náyak of Madura now invaded Mysore, meditating the conquest of the country; but not only was he forced to retire, but Erode and Dharapuram yielded to the Mysoreans, who levied heavy contributions on Trichinopoly and other important places. Doḍḍa Deva Rája was a great friend of the Brahmans, and was profuse in his grants and donations to the holy order. He died at Chiknáyakanhalli, which, together with Hulyurdurga and Kunigal, had been

court-yard after dark, and lay in wait until he passed across, preceded by a torch-bearer. The latter was first killed, and the torch went out. "Who are you?" said the minister. "Your enemy," replied one of the peons, and made a blow. The minister closed with him and threw him down, holding him by the throat. The other peon, in the dark, knew not which was which. "Are you top or bottom?" he asked. "Bottom," gasped the half-strangled peon, on which his companion dealt the fatal blow.

conquered not long before. The Mysore kingdom at this period extended from Sakkarepatna in the west to Salem in the east, and from Chiknáyakanhalli in the north to Dharapuram (Coimbatore District) in the south.

Chikka Deva Rája, who was passed over at the commencement of the preceding reign, now succeeded, and became one of the most distinguished of the Mysore Rájas. His early youth had been passed at Yelandur, where he had formed an intimacy with a Jain named Visháláksha Pandit. When Chikka Deva Rája and his father were confined at Hangala, this man continued his attachment and followed them into captivity; not, however, from disinterested affection, but because he had ascertained by his knowledge of the stars that Chikka Deva Rája would certainly succeed to the throne. Having obtained a promise that if such an event should come to pass he should be made prime minister, he repaired to the capital and industriously circulated in secret among influential persons the prediction of Chikka Deva Rája's destiny. When, therefore, Doḍḍa Deva Rája died, every one was prepared to receive the successor decreed by fate. They did not acquiesce quite so readily when the pandit was made minister, but the ability of the Rája and his adviser soon silenced all murmurs.

One of the earliest measures of the new reign was the establishment, for the first time, of a regular post throughout the country. Its functions were, however, conjoined with those usually discharged by a detective police, and information of the private transactions of each district was thus regularly collected and sent to court by the postal officials. Several conquests were made between 1675 and 1678, the most important of which were those of Madgiri and Midagesi, with some of the intermediate districts; which brought the Mysore frontier, projecting in a long arm northwards, up to that of Carnatic Bijapur, now disorganized by the raids of Sivaji, consequent on the dispute previously mentioned between him and his half brother Venkoji, or Ekoji.

During the next ten years were introduced a number of financial changes, having for their object the increase of the revenue. The Rája was unwilling to incur the risk of increasing in a direct manner the established proportion of one-sixth share of the crop payable to the crown as land revenue. A number of petty taxes were therefore imposed, of a vexatious character,[1] in order that the ryots might be driven to seek relief and compound for their abolition in voluntarily submitting to an increase of the land assessment. Lands held by the soldiery as part payment for their services were, on grounds of policy,

[1] For a list see Wilks.

exempted. These measures gave rise to great discontent, which was fanned by the Jangama priests. The opposition was manifested by a determination not to till the land. The ryots deserted their villages and assembled as if to emigrate. The Rája's resolution was prompt, but sanguinary and treacherous. He invited all the Jangama priests to meet him at Nanjangud for the purpose of discussing matters. Only four hundred attended. What followed is thus described by Wilks :—

A large pit had been previously prepared in a walled inclosure, connected by a series of squares composed of tent walls with the canopy of audience, at which they were successively received one at a time, and after making their obeisance were desired to retire to a place where, according to custom, they expected to find refreshments prepared at the expense of the Rája. Expert executioners were in waiting in the square, and every individual in succession was so skilfully beheaded and tumbled into the pit as to give no alarm to those who followed, and the business of the public audience went on without interruption or suspicion. Circular orders had been sent for the destruction, on the same day, of all the Jangam *muts* (places of residence and worship) in his dominions ; and the number reported to have been in consequence destroyed was upwards of seven hundred. This notable achievement was followed by the operations of the troops, which had also been previously combined. Wherever a mob had assembled, a detachment of troops, chiefly cavalry, was collected in the neighbourhood, and prepared to act on one and the same day. The orders were distinct and simple ; to charge without parley into the midst of the mob ; to cut down in the first selection every man wearing an orange-coloured robe (the peculiar garb of the Jangam priests) ; and not to cease acting until the crowds had everywhere dispersed. It may be concluded that the effects of this system of terror left no material difficulties to the final establishment of the new system of revenue.

The chief odium of these massacres, as well as the innovations which had led to them, naturally fell upon the Yelandur Pandit who was at the head of the administration. An impression also got abroad that the Rája was about to abandon the doctrines of the Jangama in which he was brought up, and to revive the ascendancy of the Jain faith. The result was that the minister fell a victim to a plot against his life, and he was assassinated one night while returning from court. The Rája was much affected at the news and hastened to the death-bed of his faithful counsellor ; who, with his dying breath, recommended a Brahman named Tirumalaiyangar as the most able and honourable man to succeed him as minister.

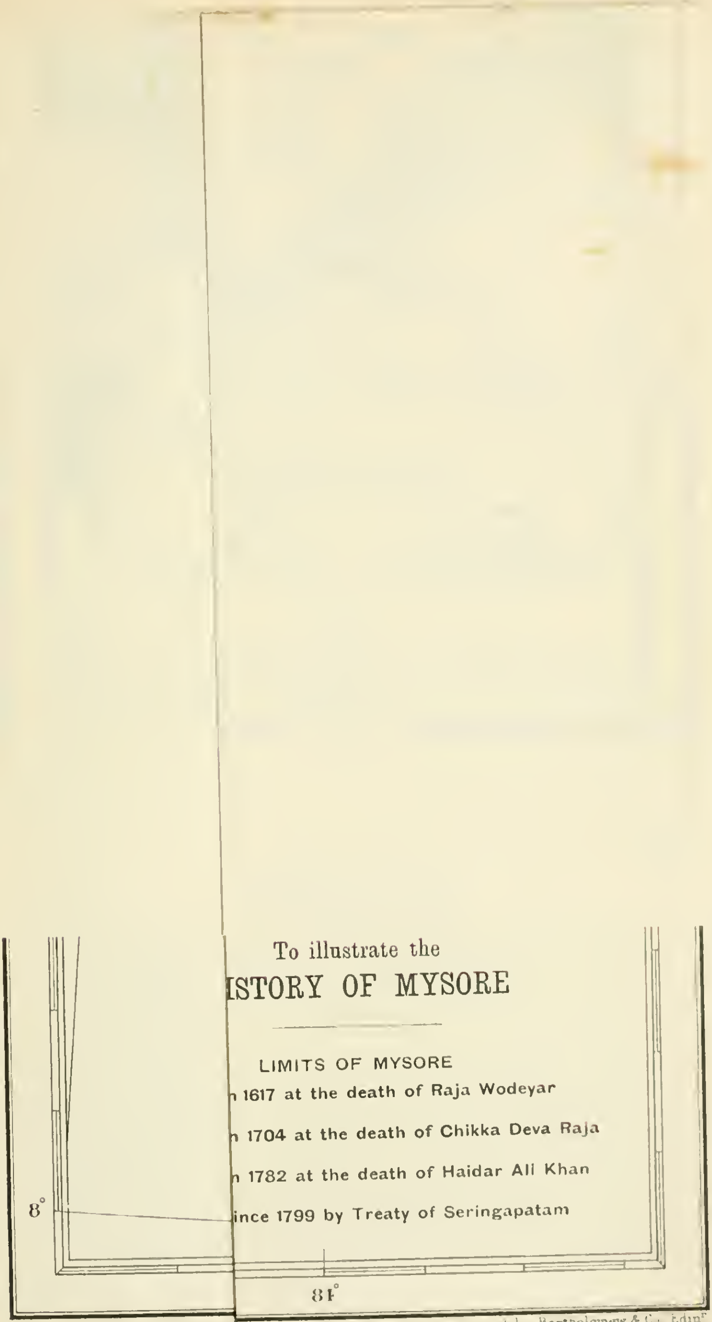
These transactions bring us to 1687—the period when the Mughals, having captured Bijapur, were taking possession of the Carnatic provinces dependent on it, and forming the Province of Sira. The

agreement as to the sale at this time of Bangalore by Venkoji, or Ekoji, to the Mysore Raja for three lakhs of rupees; its seizure by Khasim Khan, the Mughal general, before the entry of the Mysore troops, and the conclusion of the bargain notwithstanding,—are related in the account of that district. Bangalore had now become a possession of the Mysore Raja, who assiduously cultivated an alliance with Aurangzeb through the general Khasim Khan, while at the same time extending his territories in directions that would not interfere with the Mughal operations.

Túmkúr was taken the same year; then, turning east by way of Hoskote, the Mysore army descended the Ghats and subdued a great part of Baramahal and Salem. Between 1690 and 1694, the territories were extended westwards, and all the districts up to the Baba Budan mountains, including Hassan, Banavar, Chikmagalur, and Vastara were taken from Bednur. And by a treaty concluded in 1694 with the chief of that state, all these conquests, except Aigur and Vastara, were retained by Mysore.

The project was next formed of invading the possessions of the Náyak of Madura, and Trichinopoly was besieged in 1696. But while the strength of the army was engaged before that fortress, a Mahratta force,—marching to the relief of S'enji, where Rama, the second son of Sivaji, had been long besieged by the Mughals under Zulfikar Khan,—attracted by the hope of plunder, suddenly appeared before Seringapatam. An express was at once sent to the daḷaváyi Kumáraiya directing him to return for the protection of the capital. But as he had made a vow not to appear before his Rája before he had taken Trichinopoly, he despatched his son Doḍḍaiya in command of a force, which came up by rapid marches, and, by means of a stratagem which seems often to have been resorted to by the Mysore troops,[1] inflicted a total defeat upon the enemy, in which the leaders were slain and the whole of the ordnance, baggage and military stores of every description captured.

[1] It was the practice of the Mysore army to perform their night marches by the light of numerous torches, and this was made the foundation of a stratagem effected in the following manner:—In the evening the daḷaváyi sent a small detachment in the direction opposite to that on which he had planned his attack; and in the probable line by which he would move to throw his force into the capital. This detachment was supplied with the requisite number of torches and an equal number of oxen, which were arranged at proper distances, with a flambeau tied to the horns of each, in a situation where they could not be observed by the enemy. At an appointed signal, the torches were lighted and the oxen driven in the concerted direction, so as to indicate the march of the army attempting to force its way through the besiegers by an attack on the flank of their position. So soon as it was perceived that the enemy were making a disposition to receive the army of torches, Doḍḍaiya silently approached their rear, and obtained an easy but most sanguinary victory.



John Bartholomew & Co. Edinr

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Next year, Khasim Khan, the friend of the Rája at the court of Aurangzeb, died ; and Chikka Deva-Rája resolved to send an embassy to the emperor for the purpose of establishing a fresh interest at court, and gaining if possible a recognition of his authority over the newly-conquered territories. The embassy, which set out in 1699, found the imperial court at Ahmednagar, and returned in 1700, bringing with it, as is alleged, a new signet from the emperor, bearing the title Jug Deo Raj,[1] and permission to sit on an ivory throne.[2]

The Rája now formed various administrative departments, eighteen in number, in imitation of what his ambassadors had observed as the system pursued at the Mughal court. The revenues were realized with great regularity. It was the fixed practice of the Rája not to break his fast every day until he had deposited two bags (thousands) of pagodas in the treasury of reserve funds from cash received from the districts. He had thus, by economy and victories, accumulated a treasure which obtained for him the designation of Navakóṭi Náráyáṇa, the lord of nine crores (of pagodas).

Chikka Deva-Rája died in 1704, at the advanced age of 76, after a youth spent in exile, followed by an eventful reign of more than thirty-one years ; during which, amid the convulsions and revolutions which prevailed throughout the Dekhan and Carnatic, a secure and prosperous State had been established, extending from Palni and Anemale in the south to Midagesi in the north, and from near Carnatic Ghur of the Baramahal in the east to the borders of Coorg and Balam in the west.

Kanṭhirava Rája, the son of Chikka Deva-Rája, was born deaf and dumb, and thence called Múk-arasu. But, through the influence of Tirumalaiyangar, he succeeded to the throne. During his reign the daḷaváyi Kanṭhirava attempted to reduce Chik Ballapur, but lost his life in the enterprise. His son, Basava Rája, appears to have continued the siege, and succeeded in levying tribute.

Doḍḍa Krishna-Rája, son of the dumb king, next came to the throne. At this time a change was made in the government of Sira, whereby the jurisdiction of Sadat-ulla Khan, who had hitherto governed the whole of Carnatic Bijapur, was confined to the Payanghát, and he was called Navab of Arcot ; while a separate officer, Amin Khan, styled Navab of Sira, was appointed to the charge of the Bálaghát, situated on the tableland of Mysore. Sadat-ulla Khan, aware of the riches accumulated at Mysore, resented the removal of that State from his control, and formed a combination with the Pathan Navabs of

[1] Jagat Deva Rája, the sovereign of the world.

[2] For the history of this throne *see* Vol. II.

Kadapa, Karnul and Savanur, and the Mahratta chief of Gutti, to seize upon it. Amin Khan resolved to be beforehand, and marched against the Mysore army. But the allies came up with him, and they ultimately agreed to joint action, of which Sadat-ulla was to be the leader. The Mysore Rája was glad to buy off this formidable confederacy, and Sadat-ulla received a crore of rupees. He accounted, however, for only 72 lakhs, which he divided in the proportion of 12 lakhs to each of the allies, pocketing the rest. This affair led to further exactions. Two years after, the Mahrattas appeared before Seringapatam and levied a contribution. In order to replenish these drains upon the treasury, an attack was made upon Kempe Gauḍa, the chief of Magadi, who was taken prisoner; and Sávan-durga, with the accumulated plunder of two hundred years, fell to Mysore.

The following estimate of the Rája's character will show the direction in which matters were now tending:—

"Whatever portion of vigour or of wisdom appeared in the conduct of this reign belonged exclusively to the ministers, who secured their own authority by appearing with affected humility to study in all things the inclinations and wishes of the Rája. Weak and capricious in his temper, he committed the most cruel excesses on the persons and property of those who approached him, and as quickly restored them to his favour. While no opposition was made to an establishment of almost incredible absurdity, amounting to a lac of rupees annually, for the maintenance of an almshouse to feed beasts of prey, reptiles, and insects; he believed himself to be an unlimited despot; and, while amply supplied with the means of sensual pleasure, to which he devoted the largest portion of his time, he thought himself the greatest and happiest of monarchs, without understanding, or caring to understand, during a reign of nineteen years, the troublesome details through which he was supplied with all that is necessary for animal gratification."

Under these circumstances all power fell into the hands of the ministers, and they sought only to perpetuate their authority by placing pageant rájas on the throne. Cháma-Rája, of the Hemanhalli family, was selected as a fit person to succeed the last rája; while the three chief offices in the state, those of *daḷaváyi* or head of the army, *sarvádhikári* or head of finance and revenue, and *pradhána* or privy councillor, were held by Deva-Ráj, who was daḷaváyi, and Nanja-Ráj, his cousin, who combined in himself the other two offices. Cháma-Rája managed to effect a revolution and displace these two; but they were imprudently left at large, while the new administration, by ill-advised measures of economy, became so unpopular that Deva-Raj and Nanja-Ráj found means to recover their power. The Rája

and his wife were seized and sent prisoners to Kabbál-durga, the deadly climate of which they did not long survive.

A younger brother of the deceased Rája, named Venkat Arasu, was passed over as having too much talent to be subservient ; and a child of five years old, of a distant branch, was placed on the throne. He is known as Chikka Krishna-Rája. The administration continued as before, except that Venkatapati was appointed to the office of pradhána, while Nanja-Ráj, as sarvádhikári, was the head of the government. He died after six years, refunding at the approach of death eight lakhs of rupees, which he estimated as the amount he had improperly acquired. He also left a warning against employing the person who was his actual successor, Nanja-Ráj, the younger brother of Deva-Ráj, and surnamed Karachúri.[1]

The Navabs of Arcot continued to eye with jealousy the rights of the Navabs of Sira to receive tribute from the rich State of Mysore. The weakness of Tahir Khan, now in power at Sira, led Dost Ali Khan, the governor at Arcot, to despatch a powerful and well-appointed army to exact from Seringapatam the largest contribution that had ever been obtained from it. Deva-Ráj, though no longer young, advanced to meet this invasion. The chiefs on both sides were reconnoitring at Kailancha on the Arkavati, a few miles east of Channapatna, when the two Musalman chiefs, not heeding, came too far. Deva-Ráj skilfully cut off their retreat, and falling upon them with his party, they were both slain after a brave resistance. Deva-Ráj followed up the blow, and attacked the Musalman camp with his whole army. They were completely surprised and overthrown, fleeing in confusion below the Ghats, while the victor returned in triumph to Seringapatam.

In 1746 Nanja-Ráj commanded an expedition into the Coimbatore country against the palegar of Dharapuram ; Deva-Ráj, the daḷaváyi, taking charge of the revenue and finances. During the absence of the army, Nasir Jang, son of Nizam-ul-Mulk, now Subadar of the Dekhan, marched towards the capital by order of his father to levy a contribution. A deputation was sent forth to meet him, tendering allegiance ; and while the negotiations were going on, Nasir Jang, encamped at Tonnur, amused himself on the large tank, to which he gave the name of Moti Talab, which it still retains.

Nanja-Ráj having returned successful from the south, his daughter was married to the nominal Rája, as the first step to other ambitious projects. But in 1749 was undertaken the siege of Devanhalli, in which obscure service an unknown volunteer horseman joined, who was destined before long to gain the supreme power of the state and to play

[1] *Kara*, hand, *chúri*, dagger ; equivalent to the English expression "a word and a blow."

no mean part in the history of India. This was Haidar, who, in a private capacity, had accompanied his elder brother Shabaz, the commander of a small body of horse and foot in the Mysore army. The siege of Devanhalli was prolonged for nine months, after which the palegar was allowed to retire to his relation at Chik Ballapur. Haidar's coolness and courage during the hostilities attracted the notice of Nanja-Ráj, who gave him the command of fifty horse and 200 foot, with orders to recruit and augment his corps; and also appointed him to the charge of one of the gates of Devanhalli, then a frontier fortress of Mysore.[1]

[1] Haidar was the great-grandson of Muhammad Bhelol, an emigrant from the Panjab, who had settled in a religious capacity at Aland, in Kalburga district. His sons Muhammad Ali and Muhammad Wali married at Kalburga, and then coming to Sira, obtained employment as customs peons. Before long they removed to Kolar, where the elder died; upon which the other seized all the domestic property and turned his brother's wife and son out of doors. A Náyak of peons at Kolar took them in, and when Fatte Muhammad, the son, was old enough, made him a peon. At the siege of Ganjikota, on the troops being repulsed in a general assault, the young man distinguished himself by seizing a standard and planting it once more on the breach, which rallied the assailants and thus carried the day. For this exploit the Subadar of Sira made him a Náyak, and he continued to rise. But on a change of Subadars, finding himself not in favour, he repaired to Arcot with fifty horse and 1,400 peons; and, on failing to obtain service from the Nabob on the conditions he demanded, entered the service of the Faujdar of Chittur. The latter was soon recalled to court, on which Fatte Náyak returned to Mysore and was appointed Faujdar of Kolar, with Budikote as a jágir, and the title of Fatte Muhammad Khan. At Budikote were born Shabaz and his brother Haidar, the latter in 1722. They were the sons by a third wife. For Fatte Muhammad, after three sons were born to them, had lost his first wife at Kolar, to which place she belonged, and on whose death he began the erection of the mausoleum there. His second wife was the daughter of a Nevayet who, in travelling from the Konkan to Arcot, had been robbed and murdered at Tarikere. The wife, with a son Ibrahim, and two daughters, escaping, had begged their way as far as Kolar, where Fatte Náyak proposed to marry the elder and was accepted. She, however, died without issue, and he then took to himself her younger sister, who became the mother of Haidar.

Fatte Muhammad and the eldest son by the first wife were killed in 1729, in a battle between his patron, Abdul Rasul Khan of Doḍ Ballapur, Subadar of Sira, and Tahir Khan, the Faujdar of Chittur, under whom he had formerly served, who now sought to gain possession of Sira as Subadar. The bodies of the slain father and son were conveyed to Kolar, and buried in the mausoleum. Meanwhile, the family of Fatte Muhammad had been confined in Doḍ Ballapur as hostages for his fidelity, in accordance with the usual practice of those times. Abdul Rasul had also fallen in battle, and Abbas Khuli Khan, his son, being left in possession of the Doḍ Ballapur jágir on resigning all claim to Sira, now proceeded to plunder the families thus placed in his power. Shabaz and Haidar, the former about nine and the latter seven years of age, were tortured for payment of a pretended balance due from their father. When suffered to depart, the mother with her children went to Bangalore, and found shelter with her brother, Ibrahim Sahib, who commanded some peons under the Killedar. Shabaz, when old enough, obtained a subordinate command, and rose to the position in which he appears before Devanhalli.

An order soon arrived from Nasir Jang as Subadar of the Dekhan for the Mysore troops to attend him in an expedition against Arcot. A force, which included Haidar and his brother, was accordingly sent under Berki Venkata Rao, and joined the main army at Madgiri. It is unnecessary to follow the fortunes of the several claimants to the Navabship of the Carnatic, with the rival struggles of the English and the French in support of one or other. Suffice it to say that when Nasir Jang was treacherously killed and his camp broken up, Haidar took advantage of the confusion and managed to secure two camel loads of gold coins, which were safely despatched to Devanhalli, as well as about 300 horses and 500 muskets, picked up at various times. The Mysore troops shortly after returned to their own country.

In 1751 Muhammad Ali, the English candidate at Trichinopoly, opposed to Chanda Sahib, the French candidate at Arcot, sent an ambassador named Seshagiri Pandit to Mysore for assistance. The daḷaváyi Deva-Ráj was adverse to engaging in the enterprise; but his younger brother Nanja-Ráj was tempted by an extravagant promise of the cession of Trichinopoly and all its possessions down to Cape Comorin, to lend the acquired assistance, and agreed to make provision for Muhammad Ali in giving him Hardanhalli, at the head of the pass to Trichinopoly, as a jágir.

About the time of Clive's celebrated siege and subsequent defence of Arcot, a Mysore army, consisting of 5,000 horse and 10,000 infantry, marched from Seringapatam under the command of Nanja-Ráj. The only regular troops in the force were a small body in the corps of Haidar Náyak, armed with the muskets before mentioned. The army had borne no part in warfare, when the desertion and murder of Chanda Sahib occurred. His head, however, was sent as a trophy to Seringapatam, and hung up over the Mysore gate. The war seemed now to be at an end, and Nanja-Ráj claimed Trichinopoly. Muhammad Ali, unable any longer to conceal from the English the illegally formed agreement, declared that he had never intended to observe the compact. At the same time he endeavoured to deceive Nanja-Ráj with fresh promises that he would deliver up the place in two months, and gave up to him the revenues of the island of Seringham and the adjacent districts. Nanja-Ráj occupied the island, intercepted the supplies from Trichinopoly, intrigued with the French, and tried to gain the fort by treachery. Though powerfully assisted by the French, all attempts on the place were frustrated by the skilful measures of Major Lawrence. Nanja-Ráj then endeavoured to enter into a treaty with the English, but this came to nothing. Meanwhile news arrived of a serious danger threatening at home, and Nanja-Ráj returned to Mysore in 1755 at the

summons of his brother, having nearly exhausted the treasury in the expenses of this unprofitable war, added to a subsidy paid during most of the time to his Mahratta ally Morari Rao, and a loan of ten lakhs of pagodas to Muhammad Ali, which was never repaid.

The danger which called for the return of the troops under Nanja-Ráj was the approach of Salabat Jang, Subadar of the Dekhan, with a powerful French force under M. Bussy, to demand arrears of tribute. Deva-Ráj had no money to meet this demand and the enemy therefore invested Seringapatam. Matters were brought to a crisis before Nanja-Ráj, though hastening with forced marches, could arrive. Deva-Ráj was therefore driven to compromise for a payment of fifty-six lakhs of rupees. To raise this sum "the whole of the plate and jewels belonging to the Hindu temples in the town were put into requisition, together with the jewels and precious metals constituting the immediate property or personal ornaments of the Rája and his family: but the total sum which could thus be realized amounted to no more than one-third of what was stipulated. For the remainder Deva-Ráj prevailed on the *soucars*, or bankers, of the capital to give security, and to deliver as hostages their principal *gumástas* or confidential agents: but as he was never afterwards enabled to satisfy the soucars, they left the gumástas to their fate, and of the two-thirds for which security was given not one rupee was ever realized. Of the unhappy hostages, some died in prison, others escaped, and after a period the remainder were released." On hearing of this transaction, Nanja-Ráj halted, and discharged one-third of his army; not without great difficulty in paying their arrears.

Haidar, who had continued to advance in favour during the operations before Trichinopoly, was now appointed Faujdar of Dindigal. He had enlisted a considerable body of Bedar peons and of Pindari horsemen, and with the aid of Khande Rao, a Brahman *mutsaddi*, organized a perfect system of plunder, the profits of which were divided between Haidar and the plunderers.

"Moveable property of every description was their object; and they did not hesitate to acquire it by simple theft from friends, when that could be done without suspicion and with more convenience than from enemies. Nothing was unseasonable or unacceptable; from convoys of grain, down to the clothes, turbans, and ear-rings of travellers or villagers, whether men, women, or children. Cattle and sheep were among the most profitable heads of plunder: muskets and horses were sometimes obtained in booty, sometimes by purchase. The numbers under his command increased with his resources; and before he left Trichinopoly, besides the usual appendages of a chief of rank, in elephants, camels, tents, and magnificent appointments, he was rated on the returns and received pay for one thousand five hundred

horses, three thousand regular infantry, two thousand peons, and four guns, with their equipments."

Haidar proceeded with a considerable force to the south to take charge of his district, while Khande Rao was left at the capital to protect his interests. By a great variety of fictitious charges, Haidar managed to accumulate a large treasure, and, with the aid of skilled artificers under French masters, began to organize a regular artillery, arsenal and laboratory.

In 1756 the young Rája, now twenty-seven years of age, becoming impatient of his position, was led into a plot for confining the ministers and taking the power into his own hands. The plot was discovered, and Deva-Ráj counselled mild measures. But Nanja-Ráj stormed the palace, forced the Rája to take his seat on the throne, and then cut off the noses and ears of his partisans before his face. This disgusting affair, and the contempt of his counsel, led Deva-Ráj to retire from the capital. Accompanied by his family and a large body of adherents, he descended the Gajalhatti pass in February 1757, and fixed his residence at Satyamangala. To meet his expenses he revoked the assignments made to Haidar, whom, therefore, Khande Rao advised to come to Seringapatam at once. Before he arrived, however, the Mahrattas under Balaji Rao appeared, demanding a contribution. Nanja-Ráj in vain represented his absolute inability. Seringapatam was besieged, and the operations being directed by Europeans, was soon reduced to extremity. Nanja-Ráj was forced to compromise for thirty-two lakhs of rupees, but as all the cash and jewels he could muster amounted to no more than five lakhs, a large tract of country was surrendered in pledge,[1] and the Mahrattas departed, leaving agents for the collection of revenue, and six thousand horse, in the pledged districts. On Haidar's arrival he expressed his regret that his troops had not been ordered up from Dindigal, advised that the revenue should be withheld from the Mahrattas, and their troops expelled at the beginning of the rains, which would prevent an invasion for that season. This was accordingly done. Haidar then waited on Deva-Ráj, and it was arranged between them that the resumed revenues should be restored to Haidar, with soucar security for three lakhs, in exchange for a military contribution of twelve lakhs to Haidar for assistance rendered to the Nair Rája of Palghat, which Hari Singh, a brave Rajput adherent of Deva-Ráj and Haidar's rival in the Mysore army, was deputed to collect Haidar now returned to Dindigal and planned the conquest of Madura, which did

[1] The districts pledged were Nagamangala, Bellur, Kikkeri, Chanraypatna, Kadur, Banavar, Harnhalli, Honvalli, Turivekere, Kandikere, Chiknáyakanhalli, Kadaba, Kallur, and Huliyurdurga.

not succeed; and he shortly returned to Seringapatam, where his presence was urgently required.

The troops, whose pay had long fallen into arrears, had mutinied and sat in *dharna* at the gate of the minister. Nanja-Ráj sold the provisions in store, but the proceeds fell far short of the demand. Haidar, hearing of the state of affairs, hastened to Satyamangala and prevailed on the old chief Deva-Ráj, then very ill, to return to the capital and unite with his brother in restoring order at this critical juncture. But Nanja-Ráj was required first to make atonement to the Rája for his former outrage. This done, he went forth with a great procession to meet Deva-Ráj and conduct him from Mysore to the capital. Here Deva-Ráj died, six days after his arrival, probably from dropsy, though suspicion naturally fell on Nanja-Ráj.

Nanja-Ráj, disgusted with the task of liquidating the arrears due to the troops, now requested Haidar and Khande Rao to undertake it. This they did after a strict scrutiny of the demands, which their consummate skill in such matters enabled them to rid of all excessive and false charges; and the claims were finally settled by distribution of all the available state property, down to the Rája's elephants and horses. At the same time Haidar's own troops were placed as guards of the fort; and as soon as the mutineers, having been paid and discharged, had left the capital, the most wealthy chiefs in the army were seized and all their property confiscated as ringleaders in the mutiny.

Hari Singh, who had been sent to receive the tribute due from Malabar, found himself unable to realize any of it, and on hearing of the death of his patron Deva-Ráj, was marching back, when Haidar, to get rid of his rival, under pretence of sending back troops to Dindigal, despatched a force which fell upon Hari Singh at night while encamped at Avanashi, and massacred him as a mutineer with the greater part of his followers. Haidar presented three guns and fifteen horses to the Rája, and kept the rest of the plunder. At the same time, in lieu of the soucar security which Deva-Ráj had given him, an assignment was granted on the revenues of Coimbatore, and the fort and district of Bangalore were conferred on him as a personal jágir.

The Mahrattas, whose troops had been expelled as before stated, now returned, early in 1759, in great force, under Gopal Hari; and re-occupying all the pledged districts, suddenly appeared before Bangalore, which they invested, and at the same time sent a detachment which surprised Channapatna. Haidar was appointed to the chief command of the army to oppose this invasion. He stationed one detachment at Malvalli, under his maternal uncle Mir Ibrahim, and another at Maddur under Latf Ali Beg. The latter, by feigning fear of attack, drew out the

Mahrattas from Channapatna, and then surprised and took it by escalade. Haidar now concentrated his forces near Channapatna, and Gopal Hari, raising the blockade of Bangalore, marched to meet him with a superior force. After three months of various warfare, Gopal Hari, finding himself straitened by the activity of his opponent, proposed a negotiation. It was arranged that the Mahrattas should relinquish all claim to the districts formerly pledged, and that Mysore should pay thirty-two lakhs in discharge of all demands, past and present. To raise the money a *nazarána* or gift was levied from all the principal public servants and wealthy inhabitants, but Khande Rao could obtain only sixteen lakhs from this source. The Mahratta soucars, however, made themselves responsible for the rest on the personal security of Haidar, on the understanding that he should have the management of the restored districts in order to realize the amount.

The Mahrattas now withdrew to their own country, and Haidar returned in triumph to Seringapatam, where he was received by the Rája in the most splendid durbar since the time of Chikka Deva-Rája. He was saluted with the title of *Fatte Haidar Bahádúr*, and Nanja-Ráj on his approach rose up to receive him and embraced him.

Before long the pay of the troops again fell into arrears, and Haidar was again the medium of satisfying their demands. This he was commissioned to do by the Rája on condition that he renounced Nanja-Ráj; and the fresh assignments made to enable him to meet the demand placed in his hands more than half the possessions of the kingdom. Khande Rao was made *pradhána*, and on Nanja-Ráj was settled a jágir of three lakhs of pagodas, with a stipulation that he should maintain 1,000 horse and 3,000 foot without personal service. Nanja-Ráj, who had been the virtual ruler of Mysore for nearly twenty years, yielded to necessity, and departed from the capital in June, 1759, with all his family and adherents. He lingered, however, at Mysore, under pretence of visiting the temple at Nanjangud, until it became necessary for Haidar to regularly besiege the place and force him to retire. His jágir was in consequence reduced to one lakh, and he was required to fix his residence at Konanur in the west. His daughter, married to the Rája, died soon after. Haidar now received a further assignment of four districts for the expenses of this siege, though the grant was opposed even by Khande Rao.

A French emissary, styling himself the Bishop of Halicarnassus, shortly arrived with proposals to Haidar to join them in expelling the English from Arcot. The terms of a treaty for the purpose were concluded with Lally at Pondicherry on the 4th of June, 1760. Haidar was to furnish 3,000 select horse and 5,000 sepoys, with artillery, to be

paid by the French; and on a favourable conclusion of the war Trichinopoly, Madura, and Tinnevelly were to be ceded to Mysore. In order to clear the way from Seringapatam to Arcot, the district of Báramahál,[1] though in the possession of the Navab of Kadapa, was taken possession of by Haidar, as well as Anekal, from the palegar of that place; while the French yielded up the fort of Tyágar as a point of communication. The Mysorean troops, commanded by Makhdum Ali, on descending the ghats, gained one easy and unexpected victory at Trivadi on the 17th of July. But the ambitious prospects which this opened up were swiftly blighted by the imminent jeopardy in which Haidar in a moment was placed.

The royal party at Seringapatam found that an exchange of Haidar for Nanja Raj had left them in the same dependent condition as before, and a plot was formed by the old dowager and Khande Rao for getting rid of one whose recent encroachments tended to a complete usurpation of the government. A favourable opportunity seemed now to offer. A large portion of Haidar's troops were absent at Arcot; the remainder were encamped on the north of the river, which was too full to ford; while Haidar himself with a small guard occupied an exposed position under the guns of the fort. Negotiations were opened with a Mahratta force under Visaji Pandit, which was ravaging the country between Ballapur and Devanhalli, and the services obtained of 6,000 horse to reach Seringapatam by the 12th of August. On the morning of that day the fort gates were not opened as usual, and Haidar was roused up by a tremendous cannonade upon his position at the Mahánavami mantapa—the site of the present Darya Daulat. In amazement he sent for Khande Rao, and was informed that he it was who was directing the fire. He saw at once the extent of the treachery, and sheltering his family[2] and followers as well as possible, promptly secured all the boats (*harigólu*) on the river. The Mahrattas, as usual, not having arrived, Khande Rao could not attack, and the day passed in negotiations. The result was that the landing-place on the northern bank was left unguarded, and Haidar escaped that night across the river with a few tried followers, bearing what money and jewels they could carry, but forced to leave behind his wife with his eldest son Tipu, nine years of age, and all his foot-guards. The family were removed to the fort and kindly treated by Khande Rao.

Haidar fled north-east and arrived before daylight at Anekal,

[1] Meaning the twelve districts, and so called after twelve hill forts, viz., Krishnagiri, Tripatur, Vaniambadi, Jagadeva-gada, Kavila-gada, Maharáj-gada, Bhujanga-gada, Katara-gada, Gagana-gada, Sudarshana-gada, Tatukal, and Ráyakota.

[2] In the fright his wife was prematurely delivered of a son, Karim.

commanded by his brother-in-law Ismail Ali, having ridden seventy-five miles on one horse. Ismail Ali was at once despatched to see how matters stood at Bangalore. He had scarcely arrived there before Khande Rao's orders to seize the kiledar were received. But it was too late. Kabir Beg, an old friend of Haidar's, was faithful to him. The Hindu soldiers were excluded and the fort gates shut. Haidar, on receiving the news, at once set out and reached Bangalore the same evening.

His position was indeed desperate. "He was now left, as it were, to begin the world again on the resources of his own mind. The bulk of his treasures and his train of artillery and military stores all lost: the territorial revenue at the command of Khande Rao: and the only possessions on which he could rest any hope for the restoration of his affairs were—Bangalore at the northern, and Dindigal at the southern extremity of the territories of Mysore, with Anekal and the fortresses of Báramahál. The sole foundation of a new army was the corps of Makhdum Ali; and its junction was nearly a desperate hope. He had, however, despatched from Anekal positive orders for them to commence their march without an hour's delay; withdrawing altogether the garrison of Tyagar, and every man that could be spared from the posts of Báramahál." He obtained a loan of four lakhs on his personal security from the saukars of Bangalore and was joined by a few adherents. Among others, a Muhammadan of rank, Fazal-ulla Khan, son of the late Navab of Sira, offered him his services. All hope now rested on the corps of Makhdum Ali; against whom Khande Rao had sent the Mahrattas and the best of his troops, and reduced him to great extremities.

A most unexpected turn in events saved Haidar from apparent destruction. Visaji Pandit was found ready to negotiate, and agreed to depart on the cession of Báramahál and a payment of three lakhs of rupees. The money was at once paid, and the Mahrattas marched off. Makhdum Ali, relieved from his critical blockade, proceeded to Bangalore. The explanation of the haste of the Mahratta retreat, which had excited Haidar's suspicion, now appeared. News had secretly been received of the crushing defeat of the Mahrattas by the Abdalis on the memorable field of Panipat, and all their forces were ordered to concentrate. Haidar, who had delayed giving up Báramahál, therefore retained it. He detached Makhdum Ali to secure the revenues of Coimbatore and Salem; and proceeded in person, accompanied by a French contingent, against Khande Rao, to whom place after place was yielding. He crossed the Kávéri below Sosile, and the two armies met near Nanjangud. Haidar's force being inferior in point of numbers, he endeavoured to avoid an action while waiting for reinforcements. But

Khande Rao forced on a battle, and compelling Haidar's infantry to change its front, charged it while performing that evolution. Haidar was severely defeated and retired to Hardanhalli.

"Nothing but a confidence in powers of simulation altogether unrivalled could have suggested to Haidar the step which he next pursued. With a select body of two hundred horse, including about seventy French hussars under M. Hugel, he made a circuitous march by night; and early on the next morning, unarmed, and alone, presented himself as a suppliant at the door of Nanja-Ráj at Konanur, and being admitted, threw himself at his feet. With the semblance of real penitence and grief, he attributed all his misfortunes to the gross ingratitude with which he had requited the patronage of Nanja-Ráj, entreated him to resume the direction of public affairs and take his old servant once more under his protection. Nanja-Ráj was completely deceived; and with his remaining household troops, which during the present troubles he had augmented to two thousand horse and about an equal number of indifferent infantry, he gave to the ruined fortunes of Haidar the advantages of his name and influence, announcing in letters despatched in every direction his determination to exercise the office of *sarvádhikári*, which he still nominally retained, with Haidar as his *daḷaváyi*."

Khande Rao now manœuvred to prevent the junction of Haidar with his army, and had arrived at Kaṭṭe Maḷalváḍi. The destruction of Haidar and his new friends appeared to be inevitable, when his talent for deception again released him from the danger. He fabricated letters, in the name and with the seal of Nanja-Ráj, to the principal officers of Khande Rao's army, to deliver him up in accordance with an imaginary previous compact. It was arranged that these letters should fall into the hands of Khande Rao, who, thinking himself betrayed, mounted his horse and fled in haste to Seringapatam. His forces became in consequence disorganized, when Haidar fell upon and routed them, capturing all the infantry, guns, stores and baggage. He next descended the Ghats, took all the forts that had declared for Khande Rao, and by the month of May returned to the south of Seringapatam with a large force. Here for several days he pretended to be engaged in negotiating, and every evening made a show of exercising his troops till after sunset. On the eighth day, instead of dismissing them as usual, he made a sudden dash across the river, and surprising Khande Rao's forces, completely routed them and encamped on the island.

He now sent a message to the trembling Rája, demanding the surrender of Khande Rao as being his servant, and the liquidation of

arrears due, which were designedly enhanced; offering at the same time to relinquish the service when the conditions were complied with. He however expounded his real views to the officers of state, and they, working upon the fears of the helpless Rája, prevailed upon him to resign the entire management of the country into the hands of the conqueror, reserving only districts yielding three lakhs of pagodas for himself and one lakh for Nanja-Ráj. Khande Rao was delivered up, Haidar having promised to spare his life and take care of him as a parrot, an expression used to denote kind treatment. It was however fulfilled to the letter, by confining him in an iron cage and giving him rice and milk for his food, in which condition he ended his days.

Haidar's usurpation was by this time complete; but he entered on the government of the country, in June 1761, with a studied show of reluctance and the form of a mock submission to the wishes of the Rája. After two months, having placed Seringapatam under the command of his brother-in-law Makhdum Ali, he proceeded to Bangalore. Basálat Jang, a brother of the Subadar of the Dekhan, and therefore one of the claimants to that dignity, was at this time in possession of Adoni and meditated establishing his own pretensions. The south was the direction in which he could with least opposition extend his territory. He accordingly, in June 1761, planned to reduce Sira, then in the hands of the Mahrattas, but found it would require too long a siege. He therefore marched to Hoskote, which also defied his efforts. Negotiations were soon opened between Haidar and Basálat Jang; and the latter, in return for a gift of three lakhs of rupees, invested Haidar with the office of Navab of Sira, styling him in the deeds of investiture Haidar Ali Khan Bahadur.[1]

Haidar now united his army to that of Basálat Jang and captured Hoskote. Dod Ballapur was next taken,[2] and lastly Sira. Here Basálat Jang left Haidar, being called to the north by the hostile movements of his brother Nizam Ali, now Subadar of the Dekhan. Haidar returned and attacked Chik Ballapur. Morari Rao of Gutti, advancing to its relief, was defeated, and the place fell after a most obstinate defence, the palegar taking refuge on Nandi-durga. Kodikonda, Penugonda and Madaksira, possessions of Morari Rao, were next taken; and returning to Sira, Haidar received the submission of the palegars of Raydurga and Harpanhalli, and forced that of the palegar of Chitaldroog. The latter introduced to him a pretender to

[1] He also offered him the title of *Jang*, but Haidar, who could not pronounce it better than *Zang*, fancied it contained some covert sneer, and so declined it in favour of Fazal-ulla, who thus became Haibat Jang.

[2] Abbas Khuli Khan, to whom he owed a deep revenge (*see* p. 372), abandoned his family and fled to Madras. But Haidar treated the family with great generosity.

the throne of Bednur, as related in the history of the Chitaldroog district, and the invasion of Bednur was planned. He entered the province at the end of January, 1763, and at Kumsi found the late Rája's prime minister, who had been long imprisoned at this place. From him every information was obtained as to the approaches and resources of the capital, in consequence of which Haidar, rejecting all the offers of money made to buy him off, pressed on. The Rani and her paramour fled, followed by the inhabitants *en masse*, who took shelter in the woods. Haidar, the instant of his arrival at the barrier, in March, ordered a noisy but feigned attack to be made on the posts in his front, while he himself, at the head of a select column, entered the city by a private path pointed out by the minister. The flames of the palace were extinguished and a seal placed on the doors of all but the poorest of the deserted dwellings. A booty was thus secured which has been valued at twelve millions sterling. Detachments were despatched to the coast and in pursuit of the Rani. The former took possession of the fortified island of Basavaraj-durga, as well as of Honavar and Mangalore. The latter took the Rani prisoner at Ballálráyan-durga. She, with her paramour, her adopted son, the nominal Rája, and even the pretender whose cause Haidar had ostensibly espoused, were all alike sent to a common imprisonment at Madgiri.

This important conquest was ever spoken of by Haidar Ali as the foundation of all his subsequent greatness. He designed to make Bednur his capital, and gave it the name of Haidar-nagar. His family was removed thither, and the building commenced of a splendid palace (never finished). He also established a mint and struck coins—known as Haidari and Bahaduri pagodas—in his own name. A dockyard and naval arsenal were further formed on the western coast for the construction of ships of war.

The former officials of Bednur had been, to a great extent, retained in their offices, and when Haidar Ali, having contracted the usual Malnad fever, was unable to attend to business, they formed a conspiracy for assassinating him and recovering the capital. But it was discovered. The commissioners appointed to investigate it were found to be involved, and instantly hanged in his presence. Three hundred conspirators suffered the same fate before the day ended. All opposition was thus effectually crushed.

The hill country of Sunda was subdued in December. Meanwhile Reza Ali Khan, son of Chanda Sahib, and the French candidate for the Navabship of the Carnatic, who, escaping from Pondicherry on its capture by the English in 1761, had been living since in Ceylon, landed

in Kanara and claimed protection from Haidar. He was received with distinction, and presented with a jágir of a lakh of rupees. By his advice many changes were introduced into the army. The infantry were for the first time dressed in a uniform manner, and classed into *avval*, first, and *duyam*, second; the former composed of tried and veteran troops with superior pay. The etiquette and ceremonials of the court were also regulated, and a greater show of splendour assumed in retinue and personal surroundings.

Haidar now bethought himself of appeasing the Mahrattas and the Nizam, the former for the seizure of Sira, the latter for accepting the title of Navab from his brother. Embassies with gifts were accordingly sent to either court. At Haidarabad the object was attained, but the Mahrattas could not be reconciled, and Haidar resolved to anticipate an invasion. Savanur was conquered, and the Mysore frontier advanced nearly to the Krishna, when Gopal Rao, the Mahratta chief of Miraj, was ordered to check further progress, but he was defeated. Madhava Rao, the Peshva, now crossed the Krishna with an immense army, and Haidar sustained a damaging defeat at Raṭṭihalli, with severe loss of the flower of his army. He fell back to Anavatti, where also the Mahrattas were victorious, and Haidar, with fifty cavalry, barely escaped by the fleetness of their horses. The Mahrattas retook all the recent conquests to the north; and Haidar, driven back into Bednur with the most hopeless prospects, sent off his family and treasure with all speed to Seringapatam. At length negotiations were opened, and the Mahrattas retired in February, 1765, on the restoration of all places taken from Morari Rao of Gutti and Abdul Hakim Khan of Savanur, and the payment of thirty-two lakhs of rupees. Sira was left in Haidar's hands.

During this unfavourable aspect of his affairs to the west, all his recent acquisitions to the east were in a flame of rebellion. His brother-in-law, Mir Ali Reza, was sent thither, and restored his authority. The palegar of Chik Ballapur, being starved out on Nandi-durga, was forced to surrender, and sent a prisoner, with his family, first to Bangalore and then to Coimbatore.

The conquest of Malabar was next undertaken, on information derived from Ali Rája, the Mapilla ruler of Cannamore, who thought with help from Haidar to extend his own power. A force was left at Basvapatna for the security of the north, and with all disposable troops Haidar descended into Kanara early in 1766. The Nairs were subdued with difficulty, owing to the wooded nature of the country. The northern states being conquered, the Zamorin of Calicut came forward and made his submission. Haidar suspected treachery, and, while concluding an

agreement to reinstate him on payment of four lakhs of Venetian sequins, secretly sent a force to seize Calicut. The Zamorin was perplexed and delayed payment, on which he was confined to his palace and his ministers tortured. Fearing the same fate, he set fire to the building and perished with all his family. Leaving a force at Calicut, Haidar moved on to Coimbatore, receiving the submission of the Rájas of Cochin and Palghat on the way. In three months the Nairs rebelled. Haidar returned to put them down, and adopted the expedient of deporting vast numbers to the less populous parts of Mysore. But the usual consequence to which the natives of Malabar are subject followed from the change of climate, and of 15,000 who were removed not 200 survived. A general amnesty was proclaimed, and the erection commenced of a fort at Palghat as a point of communication with the country.

During these operations the pageant rája, Chikka Krishna-Rája, had died, and Haidar had sent instructions to instal his eldest son, Nanja-Ráj, then eighteen years of age, in his place. On arriving at the capital in 1767, he discovered that this youth was not likely to acquiesce in his subservient position. Haidar immediately resumed the three lakhs of pagodas allowed for the Rája, plundered the palace of every article of value except the ornaments the women actually had on their persons at the time, and placed his own guards over the place.

Intelligence meanwhile arrived that the Mahrattas and Nizam Ali had planned a joint invasion of Mysore. The Mahrattas first appeared, under Madhava Rao, and Haidar in vain endeavoured to stop their progress by cutting the embankments of the tanks, poisoning the water in the wells, burning the forage, and driving off all the villagers and cattle on their route. The Mahrattas arrived at Raydurga and marched down the bed of the Haggari to Sira. Here Mir Sahib, Haidar's brother-in-law, betrayed his trust, and gave it up in return for Guramkonda, the possession of his ancestors. Haidar now made strenuous efforts to treat with the Mahrattas, who had overrun all the east, before Nizam Ali should join them. At length, by the address of Appaji Ram, a witty and skilful negotiator, the Mahrattas agreed to retire on payment of 35 lakhs of rupees, half to be paid on the spot, and Kolar to be retained in pledge for the rest. On Nizam Ali's arrival soon after, Haidar persuaded him into an alliance with himself against the English. Meanwhile, discovering that Nanja-Ráj, the old minister, was intriguing with the Mahrattas and Nizam Ali, he induced him by a false oath of security to come to Seringapatam, on the plea that his advice was needed in the critical state of the country, and then made him prisoner, reducing his allowances to the bare necessaries of life.

Nizam Ali deceived the English, with whom he was allied, up to the

last moment, but on the 25th of August, 1767, the forces of Mysore and Haidarabad descended the Ghats and attacked Colonel Smith, who, though at first taken by surprise, completely defeated them at Trinomali on the 26th September. Tipu, then seventeen, had, under guidance of Ghazi Khan, his military preceptor, penetrated with a body of horse to the very precincts of Madras, when, hearing the result of the battle of Trinomali, he retired with precipitation to join his father. Mutual recriminations ensued between Haidar Ali and Nizam Ali, and notning was done for a month. The former then seized upon Tripatur and Vaniambadi, but signally failed in an attack on the hill fort of Ambur. In the hope of closing the campaign with a brilliant exploit, he went in person against an English detachment escorting supplies, but was repulsed, his horse being shot under him and his turban pierced by a bullet. Leaving some cavalry to watch the English, the confederates retired in disappointment above the Ghats with all their forces at the end of the year.

On the side of the English, a force operating from the Northern Sirkars soon penetrated to Orangal. The Nizam was therefore glad to conclude a treaty with them, resigning all claims to Mysore, and, separating from Haidar Ali, returned to his capital. Haidar also made overtures, but without success. Meanwhile a fleet was fitting out at Bombay for capturing the Mysorean ports on the western coast, and the chiefs of Malabar were prepared to rebel. Haidar, leaving Fazal Ulla Khan at Bangalore, marched with all haste to the west and retook Mangalore, Honavar, and Basavaraj-durga, which had fallen to the English. He then visited Bednur, and levied heavy fines on all the landholders for furnishing supplies to his enemies. He also obtained large contributions from the chiefs of Malabar in consideration of recognizing their independence, which, however, they never attained.

The English forces in the east were in two detachments. One secured all the fortified places in Salem, Erode, Coimbatore, and Dindigal; while the other, after losing much time in the capture of Krishnagiri, had ascended the Ghats, taken Mulbagal, Kolar, and Hosur, and was awaiting, burdened with the care of Muhammad Ali, the junction of the two at Hoskote. Here a corps under Morari Rao joined it, on the same day that Haidar Ali arrived at Bangalore. He made a desperate attempt to surprise the camp of Morari Rao, but failed. Then, sending off his family and treasure to Sávan-durga, he set off on one of those extraordinary diversions which seemed always to occur to him when his affairs were most critical. He passed rapidly by a circuitous route, east and then north, to Guramkonda, with the view of inducing Mir Sahib to return to his allegiance. This unlikely object

was actually attained, and Haidar, reinforced, returned towards Kolar, and opened negotiations. But his offer of Báramahál and ten lakhs of rupees fell far short of the demands of the English and of Muhammad Ali, and came to nothing.

Haidar had meanwhile despatched Fazal Ulla Khan to Seringapatam, whence he descended the Gajalhatti pass with a field force for the recovery of the districts in the south. He himself, after some indecisive engagements, suddenly descended into the Báramahál, and, giving out that he had defeated the English, passed on to Coimbatore, gaining possession of the fortified places on the route. The garrisons of Erod and Kaveripuram held out, but, induced to surrender on a promise of safety, were marched off as prisoners to Seringapatam. Fazal Ulla Khan invaded Madura and Tinnivelly, while Haidar, levying four lakhs of rupees from the Rája of Tanjore, moved by rapid marches towards Cuddalore. Negotiations were again opened, Haidar's first condition being that he would treat only with the English and not with Muhammad Ali. But the terms could not be agreed on, and hostilities continued. Haidar, who knew that the Mahrattas were preparing for another invasion of Mysore, now secretly sent off the whole body of his army to reascend the Ghats, while he himself, with 6,000 chosen horse, marched 140 miles in three days and a half, and appeared at the gates of Madras. He had come to make peace in person with he English. A treaty was thus concluded on the 29th March, 1769, on the moderate conditions of mutual restitution of conquered districts, an exchange of prisoners, and reciprocal assistance in purely defensive war. Thus ended what is known in the annals of British India as the first Mysore war. Haidar returned leisurely to Kolar and then to Bangalore.[1]

He was soon again in the field, in order to acquire the means to meet the meditated Mahratta invasion. When he had allied himself with Nizam Ali, it was secretly stipulated that Kadapa, Karnul, and other places up to the Tungabhadra, should be transferred to the control of Mysore. He resolved now to enforce this agreement, and, moving north-east, levied contributions on the Pathan navabs of Kadapa and Karnul, and the palegars of the neighbourhood. He, however, feigned friendship for Morari Rao, and was repulsed in an attempt on Bellary. But, unable to meet the superior forces of the Mahrattas, now (1770) in full march on his capital, he gradually retired before them, laying waste the whole country to prevent their advance, and placing a detach-

[1] When Haidar appeared before Madras, so terrified was Abbas Khuli Khan of Dod Ballapur, who had taken refuge here (*see* page 381), that he embarked in a crazy vessel, and dared not land until the Mysore army had returned above the Ghats.

ment at Bednur, under Tipu, to cut off their supplies and harass them in the rear. Negotiations being opened, Madhava Rao demanded a crore of rupees; Haidar would offer only twelve lakhs. Both parties claimed help from the English, who therefore remained neutral.

The Mahrattas conquered the whole of the north and east of the country, their progress being, however, long arrested by a gallant defence of the little fort of Nijagal (Nelamangala taluq), which was at last taken by the palegar of Chitaldroog, who had joined the Mahrattas. Madhava Rao was now taken ill and returned to Poona, leaving Tryambak Mama in command. Haidar was emboldened by this change and took the field, but met with no success. At last an attempt to retreat unobserved by way of the Melukote hills being discovered, the Mysore army was attacked, disorganized, and totally routed with great slaughter, at Chinkurali, on the 5th of March, 1771. Haidar fled on horseback to Seringapatam. Tipu, who was thought to have fallen, escaped in disguise. For ten days the Mahrattas were engaged in dividing their spoils. They then sat down before Seringapatam with a large force, the remainder being employed in ravaging the whole country above and below the Ghats. Haidar could produce little effect on them, and in June, 1772, a treaty was concluded, by which he bound himself to pay thirty lakhs of rupees, one-half at once, besides five lakhs for "durbar expenses"! For the balance, Kolar, Hoskote, Dod Ballapur, Sira, Madgiri, Chanraydurga, and Guramkonda were left in their hands.

The Rája was found during these commotions to have opened an intrigue with Tryambak Rao. He was therefore strangled, and his brother, Cháma Rája, put in his place. Haidar now proceeded to extort money from all who were supposed to have any, applying the torture where necessary. Even his brave general, Fazal Ulla Khan, was not spared, nor Nanja-Ráj, his old benefactor. The latter survived only one year, the former gave up all he had and died in extreme poverty.

Madhava Rao died in November 1772, his successor Narayan Rao was killed in August 1773, and Raghunatha Rao or Ragoba became ostensible Peshva. Haidar considered the time favourable for action. He sent an embassy to Madras to form an alliance with the English. Tipu was detached to the north to recover the places ceded to the Mahrattas, while Haidar suddenly invaded Coorg, as the first step towards reconquering Malabar. The Coorgs, entirely unprepared, were surrounded by his troops, and a reward of five rupees offered for every head. About 700 had been paid for, when, struck by the fine features, Haidar relented and ordered the massacre to cease. The landholders were confirmed in their possessions on a moderately-increased rent, a fort was erected at Mercara, and Devaiya, the Rája, who had become a

fugitive, was captured and sent to Seringapatam. A force was at once despatched to Malabar, which seized Calicut and reduced the Nair chiefs to dependence in a wonderfully short time. Tipu was equally successful in the north, and thus, between September 1773 and February 1774, Haidar completely recovered all the territory he had lost. A treaty was shortly formed with Ragoba, by which Haidar engaged to support his pretensions to be the head of the Mahratta State, in consideration of the tribute payable from Mysore being reduced to six lakhs. An insurrection in Coorg was promptly put down, and Haidar returned with his army to Seringapatam early in 1775. The negotiations with the English unfortunately came to nothing, owing to the intrigues of Muhammad Ali, and Haidar therefore turned towards the French.

Cháma Rája now died, and there being no heir to the throne, Haidar, who from motives of expediency still wished it to be occupied by a pageant king, resorted to the following method of selecting one :—Assembling all the male children of the different branches of the family, he introduced them into a hall strewed with fruits, sweetmeats, and toys, telling them to help themselves. They were soon scrambling for the things, when one little fellow took up a dagger in one hand and a lime in the other. "That is the Rája !" exclaimed Haidar, "his first care is military protection, his second to realize the produce of his dominions ; bring him hither and let me embrace him." Thus did Cháma Rája IX obtain the throne, and he was accordingly installed as Rája.

About this time Haidar received a body of 1,000 men from Shiraz in Persia to serve in his army, and sent an embassy for more. But the latter was lost in the Gulf of Kach, and the first instalment did not long survive the change of climate. Brahman agents were now employed to foment dissensions in such neighbouring states as Haidar had resolved to conquer. His assistance was thus applied for by the palegar of Bellary, who, having been induced by such emissaries to declare his independence, was attacked by Basálat Jang. Haidar marched to the relief in the incredibly short space of five days, fell upon the besiegers before they knew he had left his capital, and completely routed them, the commander being killed, and Lally escaping with difficulty. But Haidar promptly took their place in the batteries, and forced the chief to surrender it to himself at discretion. Meanwhile the forces sent in pursuit of Basálat Jang were bought off with a lakh of pagodas. A demand was next made by Haidar on Morari Rao, of Gutti, and refused. A siege ensued, and after some months Gutti was taken, all its dependencies added to Mysore, and Morari Rao sent prisoner, first to Seringapatam and then to Kabbal-durga, where he shortly died.

Meanwhile Ragoba's power had met with a reverse which caused him to fly to Surat, where, on the 6th of March, 1775, a treaty was concluded with the English to aid him in recovering his authority. He also proposed to Haidar to take possession of the Mahratta territories up to the Krishna, that he might be at hand to assist. No second invitation was needed. All the tributary palegars in the north were summoned to attend with their troops, and Savanur was overrun; but the monsoon bursting with such violence as to cause great mortality in the army, Haidar, disbanding the troops, returned to Seringapatam. All the amildars were, however, summoned to the capital, the rates of revenue were investigated and increased, the peshkash payable by tributaries was also raised, and finally a general contribution under the name of *nazarána* was levied on the whole country for the expenses of the war.

Of the claimants to Mahratta sovereignty, Ragoba being supported by Haidar, while Nizam Ali declared for the ministerial party and the reputed son of Narayan Rao, a joint invasion of Mysore by the latter was the consequence. Four chiefs were sent in advance to clear Savanur of Haidar's troops, but they were skilfully and completely defeated by his general at Saunsi, two of them being taken prisoners. The main armies of the confederates now approached. The Mahrattas, under Parasu Ram Bhao, numbered 30,000, and were to march south-east through Savanur. The army of Nizam Ali, estimated at 40,000, under Ibrahim Khan, were to move south by Raichur. Haidar took post at Gutti. Parasu Ram Bhao, on hearing of the defeat of the advance corps, fell back beyond the Krishna for reinforcements. Ibrahim Khan, informed of this movement, and secretly bribed by Haidar, thereupon also retired beyond the Krishna, after he had marched as far as Adoni. The rains set in, and put a stop to further proceedings for the present. The navab of Kadapa and the palegar of Chitaldroog, instead of assisting Haidar, had joined the enemy. He resolved now to punish them, and sat down before Chitaldroog. It was bravely defended for months, when Haidar, aware that 60,000 Mahrattas, under Hari Pant, were approaching, concluded an agreement to retire on payment of thirteen lakhs of pagodas.

Haidar thence advanced to meet the enemy, in whose forces his agent had managed, by a bribe of six lakhs of rupees, to secure the treachery of a chief of 10,000, who was to come over in the first action. The Mahrattas, after waiting in vain for the forces of Nizam Ali, crossed the Tungabhadra. The armies met at Raravi. Manaji Pankria, the chief who had been bribed, hesitated. Haidar, suspecting double treason, made dispositions which excited the suspicions of Hari Pant, who saw he was betrayed, but knew not to what extent. "In a few

moments an impenetrable cloud of dust arose both in front and rear of the Mahratta line, which neither decidedly approached nor decidedly receded; it was evidently the mass of their cavalry in full charge; but not towards Haidar. Some time had elapsed before he perceived that the corps of Manaji Pankria had been enveloped and swept off the field, and that a powerful rear-guard presented itself to cover the retreat of the whole. The armies had not sufficiently closed to render pursuit decisive, and two guns only were lost by Hari Pant in effecting his retreat behind the Tungabhadra, where a strong position secured him from insult, and afforded him leisure to investigate the extent of the disaffection which had produced his retreat. The troops of Manaji Pankria had made a tolerably gallant resistance, and attempted to move in mass towards Haidar: the greater part, however, were cut to pieces, and Manaji Pankria himself wounded, and, accompanied by no more than thirty select friends, had opened a way through the surrounding mass, and made good his escape to Haidar." But the project of invasion was thus defeated. Hari Pant retreated. Haidar rapidly followed, and drove the enemy over the Krishna in December 1777. He now reduced all the forts between the Krishna and the Tungabhadra, making the Desháyis, or chiefs, tributary to himself.

He then returned to Chitaldroog, which was taken at last in March 1779, by treachery, as related in the history of the place. The Bedar population, to the number of 20,000, were deported to people the island of Seringapatam, while all the boys were converted and trained up as soldiers, forming what were called Chela battalions.[1] Kadapa was the next object of attack. The Pathan guards were surprised and forced to surrender; the navab retired to Sidhout, and Kadapa was taken

[1] A young Nair, who had been taken from Malabar and forcibly converted to Islam, with the name of Sheikh Ayaz, was appointed governor of Chitaldroog. He was a handsome youth, and Haidar had formed the most exalted opinion of his merits, frequently upbraiding his son Tipu for inferiority to him. "Modest as he was faithful and brave, Ayaz wished to decline the distinction as one to which he felt himself incompetent; and particularly objected that he could neither read nor write, and was consequently incapable of a civil charge." "Keep a korla* at your right hand," said Haidar, "and that will do you better service than pen and ink." Then assuming a graver countenance, "Place reliance," added he, "on your excellent understanding: act from yourself alone: fear nothing from the calumnies of the scribblers; but trust in me as I trust in you. Reading and writing!! how have I risen to empire without the knowledge of either?"

* A long whip of cotton rope, about an inch and a half in diameter at the thick end where it is grasped, and tapering to a point at the other extremity; this severe instrument of personal punishment is about nine feet long; and Haidar was constantly attended by a considerable number of persons too constantly practised in its use.

without opposition. But Haidar was near losing his life by a plot of the Afghans. Admiring their courage, he had taken into his service all who could find security for their behaviour among his own followers. Eighty, who had not succeeded, were left that night with their arms near his tent. They suddenly arose at dead of night, slew the guards, and made for Haidar's tent. The noise awaking him, he guessed the danger, pushed the bolster into the bed to resemble a sleeping figure, and, slitting a hole in the tent, escaped. The assassins rushed in and cut at the bed. Paralyzed with astonishment to find their victim gone, they were instantly overpowered. Of those who survived till morning, some had their hands and feet chopped off, and the rest were dragged at the feet of elephants. Sidhout surrendered on the 27th of May, and Abdul Halim Khan, the navab, was sent prisoner to Seringapatam. His sister, whose sense of honour was only equalled by her beauty, which surpassed that of any female captive yet secured, threatened to destroy herself rather than enter the unlimited harem of the conqueror in the usual informal manner. The ceremony of *nika* was therefore performed, and this lady, under the title of Bakshi Begam, was soon after placed at the head of the seraglio.

On returning to the capital, a complete revision was made of the civil departments. Mir Sadak was made finance minister, Shamaiya head of the police and post-office. Since the defection of Khande Rao, every one of Haidar's ministers, Hindu and Muhammadan alike, had died from tortures inflicted to recover real or pretended defalcations. The unscrupulous ability of Shamaiya developed to the most cruel perfection the system of espionage and fabrication of such charges, to atone for which the utmost farthing was exacted under the pressure of tortures which often terminated the lives of the unfortunate victims. A system was introduced of paying the troops on half-monthly pattis instead of monthly, which gradually resulted in their getting only nine or ten months' pay for the year. A double marriage was arranged in 1779 with the family of the navab of Savanur, whose eldest son was united to Haidar's daughter, and Haidar's second son, Karim, to the navab's daughter. The ceremonies were celebrated with great pomp at Seringapatam, and accompanied with the gift of the unrestored half of Savanur to the navab.

During these festivities an envoy arrived from the ministerial party at Poona, by whom Haidar was expecting an invasion. But, induced by the hopelessness of Ragoba's cause, now a second time a fugitive, and other considerations, Haidar entered into a treaty. On condition that Ragoba's grant of territories up to the Krishna was confirmed, the future tribute fixed at eleven lakhs of rupees, and all arrears cancelled,

he agreed to co-operate with the dominant Mahratta party and Nizam Ali for the expulsion of the English from India. The failure of negotiations with the latter had made him ill-disposed towards them. Two events gave ground for open hostilities. The English being then at war with the French, Pondicherry was taken in October 1778, and Mahe in March 1779. The capture of the former did not directly affect Haidar, but the latter was the port through which he received military supplies from the Mauritius. He had, therefore, declared it to be under his protection, as being situated in his territory, and had threatened to lay waste the province of Arcot if it were attacked. The other event was that an English corps, marching to relieve Adoni, proceeded through the territory of Kadapa without formal permission obtained from Haidar, to whom it now belonged, the commanding officer being merely furnished with a letter to the manager of the district.

The news of this reached Haidar at the very time that the missionary Schwartz had arrived at Seringapatam, commissioned by the Governor of Madras to assure him of the amicable designs of the English Government. "If the English offer the hand of peace and concord, I will not withdraw mine," said Haidar, but he sent letters to the Governor requiring reparation for the alleged grievances, and referring to his unfulfilled threat of revenge. Meanwhile, some English travellers who landed at Calicut were seized and conveyed to Seringapatam. Mr. Gray, member of council, was sent as an envoy to demand their release, and to bring about a good understanding. But Haidar, on finding that none of them were military, had let them go, and Mr. Gray met them on his way; but he proceeded on to the capital, where he was treated with studied disrespect, for war had been determined on.

After prayers for success, in both mosques and temples, Haidar Ali left his capital and descended the Ghats in July, 1780, with a force of 90,000 men, unequalled in strength and efficiency by any native army that had ever been assembled in the south of India. French officers of ability guided the operations, and the commissariat was under the management of Púrnaiya, one of the ministers of finance. A body of horse, under his second son, Karim Sahib, was sent to plunder Porto Novo; a larger body proceeded towards Madras, burning the villages and mutilating the people who lingered near them. From Pulicat to Pondicherry a line of desolation, extending from thirty to fifty miles inland, was drawn round Madras. The black columns of smoke were visible from St. Thomas's Mount, and the bleeding victims were pouring into Madras.

The English forces were rapidly assembled under Sir Hector Munro

at Conjeveram, but a detachment under Colonel Baillie, which was on its way to join the main army, was hemmed in and cut off. Arcot also fell. Sir Eyre Coote, the Commander-in-Chief, arrived and took the field in January. The forts in greatest danger, such as Chingleput and Wandiwash, were at once relieved. Haidar at the same time raised the sieges of Permacoil and Vellore. A French fleet now appeared off the coast, and the English force moved to cover Cuddalore, which was threatened by Haidar with the view of occupying it as a depôt for the troops expected from France. But Sir Edward Hughes, being off the western coast with a British squadron, destroying Haidar's infant navy in his own ports of Calicut and Mangalore, the French fleet made off for Mauritius; and Haidar, who had avoided every opportunity of coming to close quarters with Coote, withdrew rapidly to the interior, leaving a sufficient force to intercept all supplies. While a want of these, and a wretched equipment, prevented the English from following, he ravaged the district of Tanjore, sending off to the upper country all that was movable, including immense herds of cattle. "Weavers and their families," adds Wilks, "were collected and forcibly sent to people the island of Seringapatam. Captive boys, destined to the exterior honour of Islam, were driven to the same place with equal numbers of females, the associates of the (then) present and the mothers of a future race of military slaves."

In June Coote moved out against Chidambram, but, being repulsed, retired to Porto Novo. Encouraged by this, Haidar marched a hundred miles in two days and a half, and placed himself between the English and Cuddalore. Sir Edward Hughes at this juncture arrived off the coast. While with a portion of the squadron he protected Cuddalore, the English force, with only four days' rice, carried on the soldiers' backs, marched against Haidar's position; and on the same day, the 1st of July, was fought the battle of Porto Novo, in which, with a force one-eighth that of the enemy, Sir Eyre Coote, after a severe engagement, completely beat the Mysorean army from the field. Haidar Ali, who was watching the operations seated on a stool on a small hill, was near being taken prisoner. He was conveyed out of danger by a faithful groom, who made bold to force the slippers on to his master's feet, saying, "We will beat them to-morrow; in the meantime mount your horse." He reluctantly left the field, pouring forth a torrent of abuse. Wandiwash, invested by Tipu, was again relieved, and he was recalled to join his father at Arcot.

Haidar, resolved to risk another battle, chose, as being fortunate to himself, the very spot on which Colonel Baillie's detachment had been overcome, and the anniversary of that event was the day fixed on. Sir

Eyre Coote, after forming a junction with troops sent by land from Bengal, had taken Tripassore, and wished for nothing so much as to bring his enemy to action. The result was the battle of Pollilore, fought on the 27th August, in which, after an engagement of eight hours, the Mysoreans were forced to abandon the field. Haidar now took up a strong position in the pass of Sholinghur, to prevent the relief of Vellore, reduced almost to extremities. At the battle of Sholinghur, fought on the 27th of September, victory again declared for the English, and Vellore was saved. The palegars of Chittor now came over to the English, and Haidar, indignant at their desertion, detached a select corps to burn their villages and lay waste their country. But Sir Eyre Coote, placing himself at the head of a light corps, after an absence of thirty-eight hours, during thirty-two of which he had never dismounted from his horse, returned to camp, having completely surprised and defeated these troops, capturing all their equipments.

The energy of Warren Hastings, the Governor-General—never more conspicuous than at this critical time, when England, at war with America, France, and Holland, was engaged in a life struggle in India with the Mahratta hosts in the west, and the Mysoreans under Haidar in the south—having triumphed over the mischievous opposition of a Council which frustrated every public measure, had succeeded in withdrawing the active opposition of Nizam Ali and of one branch of the Mahrattas, under Madoji Bhonsla. He now concluded a treaty with Sindhia, on the 13th October 1781, and the mediation of the latter was to be employed in bringing about a peace between the English and the Poona Mahrattas under Nana Farnavis, which was actually effected in May 1782. Meanwhile Haidar's vakil had ascertained that this was intended, and that the Mahrattas would unite with the English in compelling his master to make peace, unless the latter would at once give up all the territories acquired by him north of the Tungabhadra and all claims over the palegars to the south, in which case they undertook to continue the war and bring back Sindhia to the confederacy. Haidar now felt himself in a critical situation. He was beaten at all points by Sir Eyre Coote; he had received no adequate assistance from the French; the west coast was lost; Malabar, Coorg, and Balam were in rebellion. The defeat of Colonel Braithwaite's corps in Tanjore by Tipu, which occurred at this time, had no permanent effect in improving his prospects.[1]

[1] It was about this period that Haidar, being much indisposed, was, either by accident or design, left entirely alone with his minister Poorniah; after being for some time apparently immersed in deep thought, he addressed himself to Poorniah in the following words (related to Colonel Wilks by Poorniah):—

"I have committed a great error, I have purchased a draught of *sendi* (spirits) at

He now resolved to abandon the east and to try his fortune in the west. In December he sent all the heavy guns and stores to Mysore, compelled the people below the Ghats to emigrate thither with their flocks and herds, destroyed the forts, and made arrangements for demolishing Arcot, when news suddenly arrived that a French force had actually arrived off Porto Novo. But of the troops M. Bussy had originally embarked for the prosecution of his plans in India, the first division had been captured by Admiral Kempenfelt in December 1781, and a second in April 1782. Several naval engagements also took place at this time in Indian waters, in which the English uniformly gained the advantage. Cuddalore, however, was now taken by the French; and, forming a junction with Haidar, they carried Permacoil in May, before Sir Eyre Coote could arrive for its relief. But on the 2nd of June was fought the battle of Arni, in which the English were victorious, and nothing but the want of cavalry prevented a large capture of artillery.

On the other coast, the corps sent to Malabar under Makhdum Ali was completely defeated and destroyed at Tricalore by Colonel Humberstone, the commander being killed. Nothing could be done during the monsoon to retrieve this disaster, but as soon as the weather permitted in November, Tipu, assisted as usual by Lally's corps, under pretence of striking some blow near Trichinopoly, proceeded by forced marches across the peninsula, hoping to fall upon the English, who were preparing for the siege of Palghatcheri. But in this he was disappointed, and sustained a defeat at Paniani on the 25th. While waiting for reinforcements to renew the attack, an event occurred of the utmost importance. The Mysorean army in Coromandel had cantoned sixteen miles north of Arcot for the rains, the French being at Cuddalore, and the English at Madras. The health of Haidar had been declining, and in November was developed an abscess, or cancer, in the back, known as the *rájpora*, or royal boil. The united efforts of Hindu, Muhammadan, and French physicians did no good, and on the 7th of December 1782, this remarkable man breathed his last, at the age of sixty.

War first brought him to notice, and engaged in war he died. War was his element. The brief periods of repose between one warlike expedition and another were consumed in repairing the losses of the

the price of a lakh of pagodas: I shall pay dearly for my arrogance; between me and the English there were perhaps mutual grounds of dissatisfaction, but not sufficient cause for war, and I might have made them my friends in spite of Muhammad Ali, the most treacherous of men. The defeat of many Baillies and Braithwaites will not destroy them. I can ruin their resources by land, but I cannot dry up the sea: and I must be the first to weary of a war in which I can gain nothing by fighting."

last, or providing the means for the next. The arts and products of peace he valued only as they furnished the sinews of war. But it is impossible to withhold homage from the great natural talents which raised an unlettered adventurer[1] to the supreme control of a powerful kingdom, or the indomitable energy and fertility of resource which found in the most desperate reverses but fresh opportunities of rising.

In person he is described as robust and of medium height, of dark complexion, with an aquiline nose and small eyes. Contrary to the usual custom of Musalmans, his face was clean shaven, even the eyebrows and eyelashes being removed. The most striking article of his dress was a scarlet turban, flat at the top, and of immense diameter. His uniform was flowered white satin, with yellow facings and yellow boots, and a white silk scarf round his waist. He was fond of show and parade on great occasions, and at such times was attended by a thousand spearmen, and preceded by bards who sang his exploits in the Kannaḍa language. He was an accomplished horseman, a skilful swordsman, and a dead shot. He had a large harem of six hundred women, but his strong sensual instincts were never allowed to interfere with public business. From sunrise to past noon he was occupied in public durbar; he then made his first meal, and retired to rest for an hour or two. In the evening he either rode out or returned to business. But frequently the night was enlivened with the performances of dancing girls or of actors of comedies. He took a second meal about midnight and retired to rest, sometimes having drunk freely.

The following extracts from accounts by the Rev. W. Schwartz, who was sent by the English in 1779 to Haidar as a peace-maker, contain a graphic description of his characteristics and modes of business:—"Haidar's palace is a fine building in the Indian style. Opposite to it is an open place. On both sides are ranges of open buildings, where the military and civil servants have their offices, and constantly attend. Haidar can overlook them from his balcony. Here reigns no pomp, but the utmost regularity and despatch. Although Haidar sometimes rewards his servants, yet the principal motive is fear. Two hundred people with whips stand always ready to use them. Not a day passes on which numbers are not flogged. Haidar applies the same cat to all transgressors alike, gentlemen and horsekeepers, tax-gatherers and his own sons. And when he has inflicted such a public scourging upon the

[1] He could neither read nor write any language, though he spoke fluently Hindustani, Kannaḍa, Mahratti, Telugu, and Tamil. The sum of his literary attainments consisted in learning to write the initial of his own name, *H*, to serve as his signature on public occasions; but either from inaptitude to learn, or for the purpose of originality, he inverted its form, and signed thus, (copied from a grant in the Inam office).

greatest gentlemen he does not dismiss them. No, they remain in the same office, and bear the marks of the stripes on their backs as public warnings, for he seems to think that almost all people who seek to enrich themselves are void of all principles of honour.

"When I came to Haidar he desired me to sit down alongside of him. The floor was covered with exquisite tapestry. He received me very politely, listened friendly and with seeming pleasure to all I had to say. In reply he spoke very openly and without reserve. . . . When I sat near Haidar I particularly observed in what a regular succession, and with what rapid despatch, his affairs proceeded one after the other. Whenever he made a pause in speaking, an account was read to him of the district and letters received. He heard it, and ordered the answer immediately. The writers ran, wrote the letter, read it, and Haidar affixed his seal. Thus, in one evening, a great many letters were expedited. Haidar can neither read nor write, but his memory is excellent. He orders one man to write a letter and another to read it to him. If the writer has in the least deviated from his orders his head pays for it. What religion people profess, or whether they profess any at all, that is perfectly indifferent to him. He has none himself, and leaves every one to his choice."

The Nisháni Haidari[1] says:—"In all the cities and towns of his territory, besides news-writers, he appointed separately secret writers and spies to patrol the streets at night, and from them he received his intelligence. From morning to night he never remained a moment idle. He was a slave to the regulation of his working establishments. . . . All the operations or measures undertaken by Haidar's government, small or great, were superintended by himself in person; insomuch that even leather, the lining of bullock-bags, tent walls, and strands of rope, all passed under his inspection, and were then deposited in his stores."

The Ahvali Haidar Náik[2] thus describes the state of the country in Haidar's time:—"By his power mankind were held in fear and trembling; and from his severity God's creatures, day and night, were thrown into apprehension and terror. Cutting off the nose and ears of any person in his territories was the commonest thing imaginable, and the killing a man there was thought no more of than the treading on an ant. No person of respectability ever left his house with the expectation to return safe to it."

The minister Purnaiya sagaciously planned that the death of Haidar should be concealed from the army until the arrival of Tipu, and

[1] *History of Hydur Naik*, by Kirmani, translated from the Persian by Colonel W. Miles. [2] By Mirza Ikbal.—*See* supplement to the above.

Krishna Rao, his official colleague, acceded to the same course. It is a high testimony to the order and discipline of the army, and the influence and ability of Purnaiya, that this was successfully carried out. The body of Haidar, deposited in a large chest filled with aromatics, was sent off to Kolar under escort, as if a case of valuable plunder. Al business went on as usual. The chiefs of the army were separately and quietly taken into confidence, and all inquiries were answered to the effect that Haidar was better, but weak. Only one officer, commanding 4,000 horse, conceived the project of removing the ministers, seizing the treasury, and proclaiming Abdul Karim, Haidar's second son. But the plot was discovered, and the accomplices were put into irons and sent off under guard.

A courier on a dromedary, travelling 100 miles a day, conveyed the intelligence to Tipu at Paniani by the afternoon of the 11th. Next morning he was in full march eastward. Dispensing with all ceremony calculated to excite inquiry, he went forward as rapidly as possible, and after performing the funeral ceremonies at Kolar, joined the army in a private manner between Arni and Vellore on the 2nd of January 1783. The most ample acknowledgments were made to all the public officers, and especially to Purnaiya, for their prudent management of affairs during this critical period, and Tipu Sultan took peaceable possession of an army of 88,000 men, and a treasury containing three crores of rupees in cash, besides an immense amount of jewels and valuables.

The Mysoreans and the French, awaiting with sanguine prospects the arrival of M. Bussy to decide on the plan of the campaign, were offered battle by the English near Wandiwash on the 13th of February. But this was declined, and within a week news from the west obliged Tipu and his allies to withdraw the main body of the army for the defence of his possessions in that quarter. General Matthews had landed at Kundapur, carried Haidarghar, and on the 16th February captured Bednur. Honavar and Mangalore had also fallen to the English, who were now in possession of all the intermediate country. Shekh Ayáz, the Chela, whom we have previously mentioned in connection with his appointment to the government of Chitaldroog, was at this time governor of the Bednur country. He had abundant reason for fear in the accession of Tipu, and having discovered, as he anticipated, that the latter had ordered his immediate assassination, abandoned his charge and fled to Bombay, at the same time that the Mysore army was marchiug for its recovery. General Matthews, having gained spoils to the value of eighty-one lakhs of pagodas, besides jewels, was waiting for reinforcements, when Tipu appeared on the 9th of April. The latter, dividing his army into two columns, with one retook

Kavale-durga and Haidarghar, and with the other Anantapur; and, cutting off all communication with the coast, invested Bednur. The garrison, being starved out, capitulated on the 30th on honourable terms. But instead of being sent to the coast as stipulated, both officers and men were marched off in irons to Seringapatam. Tipu now advanced for the recovery of Mangalore, and invested it on the 4th of May. The garrison held out in spite of great hardships. In July arrived intelligence that peace had been concluded in Europe between the English and the French; the leaders of the French forces, therefore, to the great indignation of Tipu, announced the necessity for their withdrawal. An armistice was agreed to on the 2nd of August, but the articles were not observed by Tipu. Mangalore held out till the 30th of January 1784, when the starved-out garrison, whose bravery had excited the highest admiration even from Tipu, were allowed to retire to Tellicherry.

Meanwhile, in the east, the English had concluded an agreement at Tanjore with Tirumal Rao, an emissary sent by the Mysore Rani[1]—and had occupied the whole of the Coimbatore country. At Seringapatam, Shamaiya, the postal and police minister, at the same time formed a plot for seizing the fortress and restoring the Hindu Rája. It was accidentally discovered on the very eve of the date appointed for its execution, the 24th of July. Shamaiya and his brother were confined in iron cages, in which they perished. The other conspirators were dragged at the feet of elephants.

After negotiations, purposely prolonged by Tipu until the fall of Mangalore, peace was concluded on the 11th March 1785, on the condition of the mutual release of prisoners and restitution of conquests. But of the English officers the most distinguished had been previously removed by poison or assassination. Sayyid Ibrahim, the commandant of the prison, is honourably distinguished for his humanity in attempting to alleviate their condition. On the capture of the country by the English, a mausoleum was erected over his tomb at Channapatna and endowed by the East India Company.

The reversion of Mangalore to the possession of Tipu was signalized by the forcible circumcision of many thousands of native Christians and their deportation to Seringapatam. A revolt in Coorg next year led to the same treatment of the greater part of the inhabitants, the occasion being marked by Tipu's assumption of the title of Pádsháh. All Brahman endowments were at this period resumed.

[1] Tirumal Rao was assisted in his communications by his brother Narayan Rao. Their reward in case of success was to be ten per cent. on the revenues of the restored districts, and the office of Pradhána or minister. Tirumal Rao, after a conference with the authorities at Madras, was placed under the orders of Mr. John Sullivan, Resident at Tanjore.

On returning from Mangalore a demand had been made upon Nizam Ali for the delivery of Bijapur. He therefore formed an alliance with the Mahrattas, who not only countenanced the Desháyi of Nargund in refusing Tipu's requisitions, but sent the latter notice that three years' tribute from Mysore was in arrears. On this he despatched a force against Nargund, which the Mahrattas failed to relieve; and, after operations protracted for several months, the Desháyi, induced on a false promise to deliver himself up, was treacherously put into chains and sent off to Kabbal-durga in October 1785. Kittur was taken in a similar manner. War now ensued. The Mahrattas under Hari Pant, and the forces of Nizam Ali under Tohavar Jang, were on the banks of the Krishna early in 1786, prepared for the invasion of Mysore. They first attacked Badami, and took it on the 20th of May. Tipu, keeping close to the Bednur and Sunda woods, made a sudden dash across the country to Adoni. Two assaults had been gallantly repulsed, when the approach of the confederate armies forced him to raise the siege. But the rising of the Tungabhadra induced the allies to abandon Adoni and cross to the north of that stream, and the Sultan, hastening to glut his vengeance on the fort, found it evacuated. In August Tipu boldly crossed the stream, a movement quite unlooked-for by the allies at that season, and formed a junction with the Bednur division. The hostile armies were now encamped in each other's view near Savanur. The unfortunate navab of this place, who, as we have seen, had allied himself by marriage with Haidar's family, had been ruined by every method of exaction, and now threw himself into the hands of the allies. Tipu was successful in his operations, especially in his night attacks, and the allies retiring from Savanur, he entered it without opposition. The navab fled. A peace was at last concluded in 1787, by which Tipu agreed to pay forty-five lakhs of rupees, thirty at once and fifteen after a year; also to give up Badami, Adoni, Kittur, and Nargund.

Returning by way of Harpanhalli and Raydurga, after deceiving those palegars by repeated acknowledgments of their services, he treacherously seized and sent them off to Kabbal-durga, plundering their capitals of every article of the slightest value, and annexing their territories. On returning to the capital he ordered the destruction of the town and fort of Mysore, and commenced building Nazarábád, as related in the account of that place.

In January 1788 he descended to Calicut, and remained there several months framing various ordinances, and then marched to Coimbatore in the monsoon. He also now began to lay claim to the title of Paighambar, or apostle, on the ground of his religious successes, and symptoms of incipient madness, it is said, appeared. From Coimbatore

he visited Dindigal, and meditated, it appears, the conquest of Travancore. Laying waste with fire and sword the territories of refractory palegars, he returned to Seringapatam, and devoted four months to a classification of *sayyids* and *shekhs* in his army into distinct brigades. A rebellion occurred now in Coorg and Malabar, and the Sultan, passing through Coorg to quiet it, entered Malabar. Large parties of the Nairs were surrounded and offered the alternative of death or circumcision. The Nair Rája of Cherkal, who had voluntarily submitted, was received and dismissed with distinction, but immediately after seized and hanged, his body being treated with every insult. Before leaving Malabar Tipu visited Cannanore, where the daughter of the Beebee was betrothed to one of his sons. He also divided the country of Malabar into districts, each of which had three officers, charged respectively with the duties of collecting the revenue, numbering the productive trees, and seizing and giving religious instruction to the Nairs.[1]

Nizam Ali now sent an embassy proposing a union between himself and the Sultan as being the only remaining Muhammadan powers of the Dekhan and the south. But Tipu demanded as a preliminary an intermarriage in the families, at which the pride of Nizam Ali recoiled, and the negotiations came to nothing.

Meanwhile embassies with ludicrous pretensions had been sent twice to Constantinople, and once to Paris. The visionary character of the Sultan's views may be gathered from the objects sought by the former. They were—either to deliver up Mangalore in exchange for Bassora on the Persian Gulf, or to obtain permission to erect a commercial factory at Bassora with exclusive privileges; and, lastly, permission to dig a canal for the purpose of bringing the waters of the Euphrates to the holy shrine of Nejef.

The conquest of Travancore had for obvious reasons been contemplated by Haidar, and was now resolved on by Tipu. The Rája had, however, been specially named in former treaties as the ally of the English, and any attack upon him it had been declared would be considered ground for war. But a pretext was soon found. In 1759, when the Zamorin of Calicut had overrun the territories of the Rája of Cochin, the latter had applied for aid to Travancore; the Rája of which, sending an army under his general, Rama, had recovered the

[1] His orders were, that "every being in the district, without distinction, should be honoured with Islam; that the houses of such as fled to avoid that honour should be burned; that they should be traced to their lurking-places, and that all means of truth and falsehood, fraud or force, should be employed to effect their universal conversion."

entire country and driven out the Zamorin during 1760 and 1761. In return for this service certain districts were ceded by Cochin to Travancore, across which lines for the defence of its northern boundary had been erected by the latter power, which now bought from the Dutch the forts of Ayakota and Cranganur, situated at the extremity of the lines and essential to their security. Tipu, objecting to this step, set forth that the lines were erected on territory belonging to Cochin which wast ributary to him, and proceeded to attack them on the 29th December, 1789. But, contrary to expectation, he was repulsed with great loss, and was himself severely injured by falling into the ditch, into which he was forced by the rush of fugitives. He was saved with difficulty, his seals, rings, and personal ornaments falling into the hands of the enemy as trophies. Beside himself with rage, he ordered the whole of his forces from Malabar and other parts, with battering guns from Seringapatam and Bangalore, to be sent for. At the same time he wrote to the Governor-General stating that the attack was an unauthorized raid of his troops. But Lord Cornwallis was not to be deceived.

Tipu carried the lines and took the town of Travancore in March. An English force destined for Mysore was therefore assembled at Trichinopoly, and General Medows took command of it on the 24th of May. The Sultan—who only ten days before had written lamenting the misrepresentations that had led to the assemblage of troops, and offering to send an envoy "to remove the dust which had obscured the upright mind of the General"—now hastened to Coimbatore, where he received the reply that "the English, equally incapable of offering an insult as of submitting to one, had always looked upon war as declared from the moment he attacked their ally the king of Travancore."

An alliance had meanwhile been formed by the English with the Mahrattas and Nizam Ali, and treaties were signed in July, binding them to unite against Tipu, on the basis of an equal division of conquests, with the exception of any made by the English before the others joined. The plan of the campaign was—for the main division of the English, after taking all the forts of Coimbatore and Palghat, to ascend to the tableland by the Gajalhatti pass, while another division invaded Báramahál. Karur, Dhárápuram, Coimbatore, Dindigal, Erode and other places had been taken, when in September, the Sultan, leaving stores and baggage under charge of Purnaiya at the summit, descended the Gajalhatti pass and attacked Floyd's detachment at Satyamangala. But after much fighting he retired, and Floyd crossing the Bhaváni without opposition, proceeded to join the force with General Medows. While the several English detachments were forming a junction, Tipu retook Erode and Dhárápuram, but finding an attempt on Coimbatore

to be hopeless, set off with three-fourths of his army to Báramahál, which the English had invaded on the 24th of October. Colonel Maxwell had posted himself at Káveripatam, and by his skilful manœuvres foiled all the Sultan's attempts.

Being advised by Krishna Rao, the only person at this period admitted to his counsels, the Sultan now resolved to carry the war into the enemy's country, in order to draw them off in pursuit of him. He accordingly made rapid marches to Trichinopoly, and threatening that place, plundered Seringham. On General Medows' approach, he went northward, burning and plundering along his route; was repulsed in an attempt to take Tyágar, but took Trinomalee and Permacoil, and then despatched an envoy to Pondicherry. The services of a French official were there engaged as ambassador to Louis XVI., demanding the aid of 6,000 men and offering to pay all expenses. (The king of France, however, on receiving Tipu's message, declined the assistance applied for.) On the west coast, the Mysorean army was totally defeated on the 10th December. Cannanore was taken and the whole of Malabar was in possession of the English. The allies, too, at last took part in operations, the Mahrattas besieging Dharwar, and Nizam Ali's army Kopal.

Lord Cornwallis, the Governor-General, now himself took command of the British army, and concentrated the forces near Vellore. Tipu hastened up the pass of Changama to oppose the English advance. But Lord Cornwallis, by a feint of ascending by the pass of Ambúr, conveyed the whole army with all its stores and baggage by the Mugli pass and arrived at Hoskote without firing a shot. Tipu, dreaming of the 6,000 Frenchmen, had been outmanœuvred by the English. He was now alarmed for his harem, and with his whole army personally superintended their removal from Bangalore. The English encamped before it on the 5th of March, overcoming with ease the efforts of Tipu to capture their baggage. The Sultan deemed it prudent to draw off to Kengeri. But when on the 7th the petta was carried, he was astonished and indignant, and moved out with his whole force for its recovery. But the Mysoreans were repulsed with great slaughter from every point, and so evacuated the town. The fort of Bangalore was next besieged. "Few sieges," remarks Wilks, "have ever been conducted under parallel circumstances: a place not only not invested, but regularly relieved by fresh troops; a besieging army not only not undisturbed by field operations, but incessantly threatened by the whole of the enemy's force. No day or night elapsed without some new project for frustrating the operations of the siege; and during its continuance, the whole of the besieging army was accoutred, and the cavalry saddled, every night

from sunset to sunrise." A breach having been made in the curtain to the left of the projecting works of the Delhi gate and part of the adjoining tower, Lord Cornwallis resolved to give the assault on the night of the 21st.

It was bright moonlight—eleven was the hour appointed, and a whisper along the ranks was the signal appointed for advancing in profound silence ; the ladders were nearly planted, not only to ascend the faussebray but the projecting work on the right, before the garrison took the alarm ; and just as the serious struggle commenced on the breach, a narrow and circuitous way along a thin shattered wall had led a few men to the rampart on the left flank of its defenders, where they coolly halted to accumulate their numbers till sufficient to charge with the bayonet. The gallantry of the killedar, who was in an instant at his post, protracted the obstinacy of resistance until he fell ; but the energy of the assailants in front and flank at length prevailed. Once established on the ramparts, the flank companies proceeded as told off, by alternate companies to the right and left, where the resistance was everywhere respectable, until they met over the Mysore gate : separate columns then descended into the body of the place ; and at the expiration of an hour all opposition had ceased.

On ascending the breach, a heavy column was observed on the left, advancing from the embankment described to attack the assailants in flank and rear ; but this also had been foreseen and provided for, and they were repulsed with great slaughter by the troops reserved for that special purpose ; a similar column, lodged in the covered way on the right, had been dispersed at the commencement of the assault by a body appointed to scour it and draw off the enemy's attention from the breach ; and at the moment the flank companies had met over the Mysore gate, another column was perceived advancing along the sortie to enter and reinforce the garrison ; but a few shot from the guns on the ramparts announced that the place had changed masters. The carnage had been severe but unavoidable, particularly in the pressure of the fugitives at the Mysore gate, which at length was completely choked.

The Sultan had warned the garrison to expect the assault, and moving at nightfall from his camp at Jigani, had conveyed his whole army to near the Bull temple, within a mile and a half of the Mysore gate, to support the place. But so rapidly was it carried that the fugitives crowding out of the gate gave him the first intimation of its capture. Fears of an immediate advance on Seringapatam agitated the Sultan. He therefore despatched Krishna Rao, the treasurer, and Mir Sadak, the divan, to remove all the treasure and the harem to Chitaldroog ; but his mother dissuaded from this step as betokening fear to the troops. But the obscene caricatures of the English, painted by his orders on the walls of the houses in the main streets, were effaced with whitewash ; and the English boys, retained in violation of the treaty of

1784, who had been trained up to sing and dance, were strangled. His own people now began to fall away from him. Evidence of conspiracies came to light, and Krishna Rao, with his brothers, as well as others of the Hindu ministers, were in the next few days strangled or dragged to death by elephants. Meanwhile, in order to form a junction with the cavalry from Nizam Ali, Lord Cornwallis moved north on the 28th. Devanhalli and Chik Ballapur yielded to the English, and several palegars tendered their allegiance.

The British force now prepared to march on Seringapatam, and Tipu took up a position on the Channapatna road, supported by the hill forts of Rámgiri and Sivangiri, with the view of opposing it. But Lord Cornwallis, unexpectedly marching by way of Kánkánhalli, arrived without opposition at Arikere, 9 miles from Seringapatam, on the 13th of May. His route had been converted into a desolate waste, all the villagers and cattle being driven into the island of Sivasamudram, and every vestige of supplies or forage destroyed. The passage of the river at Arikere being impracticable, it was resolved to move to Kannambáḍi, higher up; for the double purpose of fording the river there and forming a junction with General Abercromby, who, advancing through the friendly country of Coorg, had taken Periyapatna.

Tipu had always avoided a general action with the English, but goaded on to risk a battle for the capital, he took up a strong position between Karigatta and the river, to oppose the march of the English. Lord Cornwallis planned a night attack to turn his left flank and cut off his retreat, but the bursting of a tremendous storm threw the troops into confusion. A general engagement ensued the next day, the 15th, in which the English were completely victorious, and the Mysoreans, driven from every point, forced to take refuge on the island. Lord Cornwallis then moved to Kannambáḍi; but the incessant rain and exhausted supplies brought on so great a mortality of the cattle, and sickness in camp, as to put a stop to all operations. He resolved, therefore, to bury the battering guns and retire to Bangalore till the rains were over. Abercromby was also forced to return to the coast. At Chinkurali, the two divisions of the Mahratta army, under Hari Pant and Parasu Ram Bhao, most unexpectedly made their appearance, and the sufferings of the troops were somewhat relieved by the supplies they brought. The Mahrattas had taken Dharwar and reduced all the places north of the Tungabhadra. The army of Nizam Ali had captured Kopal, Bahádur Bandar and Ganjikota, and obtained the submission of all places in the north-east except Guramkonda.

It was now arranged that the British should take possession of the hill forts and places in the east, in order to open free communication

with Madras; that the Mahrattas, who obtained a loan from the Governor-General of 15 lakhs of rupees, should proceed to Sira under Parasu Ram Bhao and operate to the north-west, Hari Pant remaining with the English camp; and that the Nizam's force should operate to the north-east against Guramkonda. Between July and January, the English, having taken Hosur, Ráyakota and all places to the east, succeeded in capturing the hill forts of Nandidroog and Sávandroog, deemed impregnable, as well as Hutridroog, Rámgiri, Sivangiri and Hulyúrdroog. The Mahrattas, bent on plunder, after placing a corps in Dod Ballapur and one near Madgiri, and making some fruitless attempts against Chitaldroog, went off towards Bednur at the time they should, according to the plan concerted with the allies, have been marching to Seringapatam. Hole Honnur was taken by them, and near Shimoga a battle was fought, in which the Mysoreans were worsted. But the Mahratta detachment left at Madgiri was completely routed by a force under Kammar-ud-Din, on which the garrison of Dod Ballapur withdrew to Bangalore in alarm, leaving the way open for a relief of Guramkonda. The Mysore forces sent south to act upon the communications of the English were generally unsuccessful, but Coimbatore surrendered after a long and brave defence, the garrison being marched off as prisoners to Seringapatam in violation of the terms of capitulation.

All the arrangements for the siege of Seringapatam being now matured, communications free and supplies abundant, the English army under Lord Cornwallis marched from Hulyúrdroog on the 25th of January, 1792, accompanied by the Nizam's force under one of his sons, Sikandar Jah, and a small party of the Mahrattas under Hari Pant. General Abercromby, who had returned to Malabar in November, also marched from the head of the western passes on the 22nd of January.

Lord Cornwallis encamped on the 5th of February 6 miles north of Seringapatam. The Sultan had made every effort to strengthen the defences during the past six months, and was now encamped on the north. He had persuaded himself that nothing decisive would be undertaken until the arrival of General Abercromby's army, now at Periyapatna. But Lord Cornwallis resolved to attack at once, on the night of the 6th. The English force was formed into three columns, without artillery, the centre being commanded by the Governor-General in person. Under a brilliant moonlight, the three columns marched in dead silence, at about 8 o'clock, towards the Sultan's encampment. The head of the centre column was discovered by his advanced outposts about 11, and they galloped back to give the alarm. But still perfect silence was preserved, while the pace was redoubled.

In a quarter of an hour the Mysore lines were entered. Though a damaging fire was opened on the advancing columns, they remained steady, and carried every point with the bayonet. The Mysoreans fled, panic-stricken. Victors and vanquished crossed the river and gained the island together, and would probably have entered the fort simultaneously had not the gates been closed and the bridge drawn up to exclude the foe. The petta of Shahar Ganjam was taken with ease, as were all the batteries and redoubts, except one, which was the scene of a sanguinary struggle before its capture.

The Sultan, at the commencement of this eventful night, had made his evening meal in a redoubt to the right of the spot where the centre columns had entered. On the first alarm he mounted, but before he could get news of the nature of the attack, the crowds of fugitives announced that the enemy had penetrated the camp. He fled precipitately to the ford, and barely succeeded in passing over before the advanced column of the enemy. Taking his station on an outwork of the fort which commanded the scene, he remained there till morning, issuing orders and spending one of the most anxious nights in his life. During the confusion 10,000 Coorgs, who had been forcibly converted, made their escape to their own country; and a number of French and other Europeans, who had rendered unwilling obedience to Haidar and Tipu, seized the opportunity to gain their liberty. It so happened that a large treasure was in camp that night for the purpose of paying the troops next day. But it was all safely conveyed into the fort by the skill and ability of Purnaiya, although he was severely wounded.

The whole of the next day the most vigorous attempts were made to dislodge the English from the island. The Sultan's passionate appeal "Have I no faithful servants to retrieve my honour?" was gallantly responded to by a body of 2,000 cavalry; but being foiled at every point, all the redoubts north of the river were evacuated the same night, and promptly occupied by the English.

Various efforts at negotiation had been made by Tipu since Lord Cornwallis took command of the army, but they were not calculated to succeed. He now resumed the matter, but was informed that the release of the prisoners taken at Coimbatore in violation of promises was indispensable as a preliminary. He therefore set free the officers, and sent letters containing offers of peace by them. But—at the same time he secretly despatched a body of horsemen in disguise to penetrate to the English camp and assassinate the Governor-General. The plot was discovered and frustrated.

General Abercromby crossed the river at Yedatore and joined the main army on the 16th, and the dispositions for the siege were rapidly

pushed on. Negotiations at the same time continued, and on the 22nd the envoys of Tipu brought him the ultimatum of the confederates, requiring the cession to the allies, from the countries adjacent to theirs, of one-half of the dominions which he possessed before the war; the payment of three crores and thirty lakhs of rupees, one-half immediately, the remainder in three instalments of four months each; the release of all prisoners from the time of Haidar Ali; and the delivery of two of his sons as hostages. On the 23rd Tipu assembled all the principal officers in the mosque and sought their advice. They unanimously offered to lay down their lives in defence of the capital, but hinted with various shades of expression that the army was disheartened and unreliable. After a great mental struggle, the preliminary articles, duly signed and sealed, were returned to Lord Cornwallis the same day. The two young princes surrendered as hostages, one aged ten and the other eight, were received in the English camp with every consideration due to their rank, and by Lord Cornwallis with all the tenderness of a father.

The territories to be ceded formed a lengthened subject of discussion, and the claim of the English to Coorg so exasperated Tipu[1] that the peace was on the point of being broken, when he yielded. The English obtained Malabar and Coorg, Dindigal and Báramahál: the Mahratta boundary was extended to the Tungabhadra; Nizam Ali recovered his possessions to the north of that river and Kadapa to the south. Thus ended the third Mysore war.

After the departure of the confederates, the Sultan, brooding over the heavy losses he had sustained and the deep wounds that had been inflicted on his pride, shut himself up for several days in an agony of despair. His first public act was to make arrangements regarding the money due under the treaty. It was resolved that one crore and ten lakhs of the total amount should be paid from the treasury, that sixty lakhs should be contributed by the army, and one crore and sixty lakhs by the civil officers and inhabitants at large under the head of nazarána. The oppression of the population in levying the last drove great numbers to seek an asylum in Báramahál and other neighbouring districts, though there was a large balance standing in the accounts for several years afterwards.

The Sultan's caprice, fanaticism and spirit of innovation increased with his misfortunes, and were carried to the verge of insanity. "The professed and formal regulations for the conduct of affairs had commenced before his departure from Mangalore, with the aid of his great innovator Zain-ul-Abidin; and embraced, either directly or

[1] "To which of the English possessions," he said, "is Coorg adjacent? Why do they not ask for the key of Seringapatam?"

incidentally, every department in the science of government. Regulations military, naval, commercial and fiscal; police, judicature, and ethics; were embraced by the code of this modern Minos: and his reformation of the calendar and of the system of weights and measures, was to class him with those philosophical statesmen and sovereigns of whose useful labours the secretary had obtained some obscure intelligence. It may be briefly stated regarding the whole, that the *name* of every object was changed: of cycles, years, and months; weights, measures, coins; forts, towns; offices, military and civil, the official designations of all persons and things without one exception"—a singular parody of what was transpiring in France. The administration itself was named the *Sarkár Khodádád*, or God-given Government. Persian was introduced for all words of command in the military regulations, and the same language used for the revenue accounts in preference to that of the country. The construction of a navy to vie with that of England was proposed. An improvement of the fortifications of Seringapatam was also commenced, and labourers impressed from all parts of the country for the work.

The fiscal and revenue arrangements consisted principally in the prohibition of all exports and imports, for the protection of domestic trade; and the interdiction of the growth of poppy-seeds, with the abolition of liquor-shops to check intoxication. A board of trade was also organized, with a new code for its guidance; and it was in contemplation to have established something like a bank, while the State itself monopolized the profits of money-changers. Lands and money allowances granted to Hindu pagodas, as well as the service inams of patels, were confiscated; and an income was raised by dividing the houses in the fort of Seringapatam into separate wards for different classes, and putting prices upon them. The revenue regulations of Chikka Deva Raja, however, remained unaltered; but they were republished as the ordinances of the Sultan himself. He strove, in short, to obliterate every trace of the previous rulers. For this purpose even the fine irrigation works, centuries old, of the Hindu Rajas were to be destroyed and reconstructed in his own name.

As regards selections for offices, the Sultan fancied that he could discover by mere look the capacity of a person, which naturally resulted in the most absurd blunders.[1] The manner in which complaints were

[1] All candidates for every department were ordered to be admitted and drawn up in line before him, when, looking steadfastly at them, he would as if actuated by inspiration call out in a solemn voice—"Let the third from the left be Asoph of such a district; he with the yellow drawers understands naval affairs, let him be Mir e Yem, Lord of the Admiralty; he with the long beard and he with the red turban are but Amils, let them be promoted"; &c., &c.—Wilks, II, 289.

heard and disposed of may be illustrated by a single example. A number of ryots appeared on a certain occasion before their sovereign to complain of exaction. Mir Sádak, the divan, admitted the fact and said it was made on account of *nazarána*, which silenced the Sultan at once. The divan, however, holding out to the ryots a hope of future immunity, succeeded in inducing them to agree to pay thirty-seven and a half per cent. additional, and this circumstance being brought to the notice of Tipu as demonstrating the falsehood of their former complaint, the patel or head man was hung on the spot, and the increase extended to the whole of the Mysore dominions.

By 1794 the money due under the treaty was paid, and the hostages were returned to the Sultan at Devanhalli, now called Yusufabad. In 1796 Chama Raja Wodeyar, the pageant Raja, died of smallpox. The practice of annually exhibiting him on the throne at the Dasara had been kept up, but now Tipu considered the appointment of a successor unnecessary, removed the family to a mean dwelling and plundered the palace of everything.

Tipu next strained every nerve to form a coalition for the expulsion of the English from India. Embassies were despatched at various times to the Ottoman Porte and to the court of Kabul; letters were exchanged with Arabia, Persia, and Muscat; and agents employed at Delhi, Oude, Haidarabad and Poona, the object sought in the two last-named courts being twofold, namely, an alliance with the sovereigns themselves, and the seduction of their officers from them. Even the princes of Jodhpur, Jeypur and Kashmir did not escape an invitation to join this mighty coalition. The French in particular were repeatedly applied to.

At last, in the early part of 1797, stress of weather drove a French privateer to the coast of Mangalore, having on board an obscure individual by name Ripaud. This person represented himself to be the second in command at the Isle of France, and being sent to Seringapatam by Ghulam Ali, the former envoy to the court of France, was honoured with several interviews with the Sultan. In the course of these he took occasion to extol the power and magnify the resources of his countrymen, and added that a considerable force was assembled at the Isle of France waiting for the Sultan's summons. Tipu took the hint, commissioned Ripaud to proceed to the Mauritius, conveying with him two servants as ambassadors to the Government of that island, with letters. The embassy left Seringapatam in the month of April 1797, but did not embark till October.

The embassy reached the Isle of France in January 1798, and, in spite of the obvious necessity for secrecy, was openly received by

Malartic, the French Governor, with distinguished marks of respect. The *kurreetahs* were read with all solemnity in a council, and were found to contain a proposal for a coalition to expel the English. To the great disappointment of the ambassadors, there was not a single soldier available; but to make amends, the Governor sent the Directory at home a duplicate of the Sultan's *kurreetah*, and deputed two officers, by name Chapuis and Dubuc, to reside at the court of Seringapatam. At the same time he issued a public proclamation, dated the 30th January, 1798, inviting the people of the island to join the Sultan's standard. The result of these measures was that the embassy, which was intended to have conveyed an armament sufficient to have swept the English off the face of India, returned with ninety-four men, the refuse of the Isle of France, burning with a zeal for "liberty and equality."

A Jacobin club was formed in Seringapatam, a tree of liberty set up crowned with the cap of liberty, and the Sultan, who looked upon the general denunciation of kings and rulers as directed against the English alone, enrolled as *Citizen Tipu Sultan*. At the same time M. Dubuc himself was sent in July 1798 with two Muhammadan envoys to the French Directory. Buonaparte's sudden invasion of Egypt now took place, encouraging the hope of immediate French intervention; and Dubuc, who did not actually sail till the 7th of February, assured Tipu that they must have already embarked on the Red Sea for his assistance.

But Lord Mornington, then Governor-General, was fully aware of these hostile preparations; and when a copy of Malartic's proclamation reached his hands, deemed it high time to put a check on the Sultan's designs. The French force at Haidarabad was dismissed by a master-stroke of policy, and the Nizam and Peshva united in stronger bonds of alliance with the British. This being effected, the Governor-General wrote to the Sultan on the 8th November, 1798, giving expression for the first time to the feelings awakened by his late proceedings in gentle and cautious language, informing him that certain precautions had been adopted for self-defence, offering to depute Major Doveton on the part of the allies to explain the means by which a good understanding might be finally established, and desiring Tipu to state when he intended to receive him.

On the 10th of December he wrote again, calling the Sultan's attention to the above, and requesting to be favoured with a reply at Madras, whither the Earl of Mornington was about to proceed as being nearer the scene of action. On reaching Madras on the last day of the month, the Governor-General found a reply waiting for him, dated the 25th. This letter opened with the intimation of Tipu's joy

at the brilliant naval victory of the Nile over the French, of which he had been advised by the Governor-General, and a wish for greater success. He explained away the embassy to the Isle of France as being simply the trip of a merchantman that conveyed rice and brought back some forty artificers, an incident which, it was alleged, had been distorted by the French. The Sultan added also that he had never swerved from the path of friendship, and could not see more effectual measures for establishing it than those that already existed.

The Governor-General replied on the 9th of January, 1799, exposing the whole affair of the mission to the Isle of France, which had rendered the demand of further security necessary; expressing a wish still to listen to negotiations, and allowing one day's time for a reply, with a significant warning that "dangerous consequences result from the delay of arduous affairs." This letter was accompanied by a copy of the manifesto issued by the Ottoman Porte, declaring war against the French. After a lapse of more than a month, or on the 13th of February, 1799, the Sultan replied, with utter disregard, that he was proceeding on a hunting excursion, and desired that Major Doveton might be sent "slightly attended." The Governor-General, interpreting this as contempt and as an effort to gain time, ordered at once the march of the troops, informing the Sultan of the same.

Tipu first went to Maddur to oppose the Carnatic army, but subsequently changing his mind, left a detachment at that place under Purnaiya and Sayyid Sahib, and hastened in three days to Periyapatna to meet the Bombay force under General Stuart, who had already ascended into Coorg. The romantic Rája of Coorg discerned on the morning of the 5th March, from the summit of the Siddésvara hill, the plain near Periyapatna dotted with tents, including a green one, and flew to the English with the news. But the dawn following Tipu's force was in motion. A fog and the dense jungle screened its approach till the advanced British line was attacked both in front and rear. The small band sustained the conflict for several hours, till General Stuart coming up, the Mysoreans were entirely routed.

Meantime, in the east, General Harris in command of the grand army crossed the Mysore frontier by way of Ráyakota unopposed, and selecting the Kánkánhalli road, arrived with his troops on the 27th March, 1799, at Malvalli, within forty miles of Seringapatam. Here the Mysorean army was drawn up on the heights two miles west of the town, and threatened the advance. A general action ensued, from which Tipu was forced to retreat with loss.

Anticipating that the British army would take the same route to the

capital which had been taken in 1792, Tipu had destroyed all the forage in that direction, but General Harris defeated his project by crossing the Kávéri at Sosile. When the intelligence of this skilful movement reached the ears of the Sultan, he was deeply dejected. Assembling a council of his principal officers at Bannur, "We have," he observed with great emotion, "now arrived at our last stage"—intimating that there was no hope. "What is your determination?" "To die with you," was the universal reply, and the meeting broke up bathed in tears, as if convened for the last time. In accordance with the deliberation of this assembly, the Sultan hastened to the southern point of the island, and took up his position at the village of Chandagál; but General Harris again thwarted his plans, and making a circuit to the left, safely reached the ground towards the west, occupied by General Abercromby in 1792, and sat down before the capital on the 5th April, or exactly in the space of a month from the date of his crossing the frontier.

Since the year 1792 a new line of intrenchments had been constructed on this side of the fort, from the Daulat Bagh to the Periyapatam bridge, within six or seven hundred yards from the fort, thus avoiding the fault of the redoubts in 1792, which were too distant to be supported by the guns of the fort. The Sultan's infantry was now encamped between these works and the river, and on the same evening on which the British army took up its position a portion was attacked by Colonel Wellesley, the future hero of Waterloo. Although this first attempt failed, success was achieved on the following morning, and strong advanced posts were established within 1,800 yards of the fort, with their left on the river and their right at Sultanpet.

General Stuart safely effected his junction with the main army on the 14th, notwithstanding the active and well-conducted exertions of the Mysore cavalry under Kammar-ud-Din Khan to check his progress. He took up his position on the north side of the fort. The regular siege may be said to date from the 17th, and it was decided ultimately to storm at the western angle, across the river.

Tipu, in order to open communications, had written to General Harris on the 9th, affecting ignorance of the cause of hostilities; on which he was referred to the Governor-General's letters. He now on the 20th proposed a conference, and was furnished in reply with the draft of a preliminary treaty, to be executed in twenty-four hours, the principal conditions of which were—the cession of half of his remaining territories, the payment of two crores of rupees in two instalments, and the delivery of four of his sons and four of his

principal officers as hostages. But the time passed without his accepting it. A sortie on a large scale was repulsed by the besiegers, who pushed on their operations with vigour, till on the 27th the Mysoreans were driven from their last exterior line of defence.

The Sultan now again attempted negotiation, and was informed that the terms previously offered would be held open until three o'clock next day, but no longer. From this time despair seemed to brood over him. Supernatural aid was sought both by the incantations of Brahmans and the prayers of Muhammadan *mullas*, while the stars were consulted and solemn ceremonies of divination performed with the view of ascertaining what was decreed in the book of fate. But his officers were more alive to their duty at such a crisis. Meanwhile the approaches and breaching batteries of the besiegers were steadily advancing, and, on the morning of the 2nd of May, began to form the breach, which next day was reported practicable.

Before daybreak on the memorable 4th of May the assaulting party, consisting of two thousand four hundred and ninety-four Europeans, and one thousand eight hundred and eighty-seven natives, under the command of General Baird, had taken their stand in the trenches, with scaling-ladders and other implements ready. The Sultan had persuaded himself the assault would never be made by daylight. One o'clock, however, had been decided on as the hour.

At that precise moment General Baird, eager to avenge the hardships he had suffered within the walls of Seringapatam and the secret massacre of his countrymen, stepped forward from the trenches in full view of both armies, and drawing his sword, called on the soldiers in a tone which thrilled along the trenches to "follow him and prove worthy of the British name." His men rushed at once into the bed of the river. Though immediately assailed by musketry and rockets, nothing could withstand their ardour, and in less than seven minutes the forlorn hope reached the summit of the breach, and there hoisted the British flag, which proclaimed to the world that the fate of Mysore was decided.[1]

For fourteen days preceding, the Sultan, who could not be convinced that the fall of his capital was so near at hand, had taken up his quarters in the inner partition of the Kalale Diḍḍi, a water gate through the outer rampart on the north face of the fort. The general

[1] The capture of Seringapatam and glorious termination of the Mysore war were celebrated with great rejoicings and a day of public thanksgiving throughout the British possessions, and the anniversary of the event was specially observed for many years after. As an indication of the progress made in communications since that time it may be noted that the news did not reach London till the 13th of September.

charge of the angle attacked had been committed to Sayyid Sahib, his father-in-law, assisted by Sayyid Gaffur, formerly an officer in the British service, who was taken prisoner with Colonel Braithwaite and was now serving Tipu. The eldest of the princes, with Purnaiya, commanded a corps intended to disturb the northern attack, and the second prince was in charge of the Mysore gate and the southern face of the fort, while Kammar-ud-din was absent watching Colonel Floyd. Sayyid Sahib had sent a message in the morning that the fatal hour of storming was drawing nigh, but the Sultan replied that it would not be by daylight. He had ordered his midday repast, but had scarcely finished it when the report was made to him of the actual assault. Hastily arming, he heard that Sayyid Gaffur had been killed. "Sayyid Gaffur was never afraid to die," he said, and ordered another officer to take his place. He then mounted the northern rampart with a few attendants and eunuchs, and when within two hundred yards of the breach fired several times with his own hands at the assailants, under cover of a traverse. But seeing that his men had either fled or lay dead, and that the assailants were advancing in great numbers, he retired along the rampart, slightly wounded, and meeting one of his favourite horses, mounted him and proceeded eastward till he came to the gateway leading into the inner fort, which he entered with a crowd of fugitives.

A deadly volley was poured into this crowded passage by a portion of the storming party. Tipu received a second and third wound, and his horse was struck, while the faithful Rája Khán, who still clung to his master's side, was also hit. Rája Khán advised him to discover himself. "Are you mad? Be silent," was the prompt reply. He then made an effort to disengage his master from the saddle, but both master and servant fell in the attempt on a heap of dead and dying. Tipu's other attendants obtained a palankeen and placed him in it, but he contrived to move out of it. While he lay with the lower part of his body buried underneath the slain, the gold buckle of his belt excited the cupidity of a soldier, who attempted to seize it. Tipu snatching up a sword made a cut at him, but the grenadier shot him through the temple, and thus terminated his earthly career. He was then in his forty-seventh year and had reigned seventeen years.

So long as the Sultan was present, a portion of his troops on the north side made efforts at resistance, and his French corps persevered in it for some time longer, but they were soon quelled. Immediately after the assault, General Baird hastened to the palace in the hope of finding the Sultan. The inmates, including two princes who were themselves ignorant of his fate, solemnly denied his presence, but the

doubts of the General were not satisfied. The princes were assured of protection and removed under military honours to the British camp, and the palace was thoroughly searched with the exception of the zenana, but all to no purpose. At last the General's threats extorted from the unwilling killedar the disclosure of the secret that the Sultan lay wounded in the gate; and here, after a search in the promiscuous and ghastly heap of slain, the body was discovered. It was removed to the palace in a palankeen and next day consigned with all military honours to its last resting-place, at the Lál Bágh by the side of Haidar Ali. The solemn day closed with one of the most dreadful storms that ever visited this part of the country.

"Haidar was born to create an empire; Tipu to lose one,"—was the proverbial opinion, based on the prediction of the former and an observation of their respective characters. It was justified by the events, and forcibly sums up the merits of the two Musalman rulers of Mysore.

Compared with his father, who often lamented his son's defects, Tipu was weak both in mind and character. In person he was neither so tall nor so robust as Haidar, and his complexion was darker. His hands and feet were small and delicate, his eyes large and full, but he had a short thick neck and was slightly inclined to corpulence. His face was clean shaven, except for a thin line on the upper lip, and, unlike his father, he retained his eyebrows and eyelashes. In dress he generally affected simplicity and made this the rule for his courtiers also. His turban, which was latterly green, was fastened in, in the Mahratta fashion, by a white handkerchief tied over the top and under the chin. He was very garrulous, and spoke in loud and sharp tones, laying down the law on every conceivable topic.

There is a popular idea that as Haidar means lion (a name of 'Ali, the son-in-law of Muhammad), so Tipu means tiger, but this appears to be a mistake. He was named Tipu after a holy man whose shrine is at Arcot, near which Haidar was when he heard of the birth of his son at Devanhalli. The tiger, however, was adopted by Tipu as emblematic. His throne was in the form of a tiger, with the head life-size, in gold,[1] and tigers' heads formed the capitals of the eight pillars supporting the canopy. His own uniform and that of his soldiers was covered with the tiger stripe, and this was also engraved on his guns and other articles. Tigers were chained at the entrance to his palace, and he is declared to have said that he would rather live two days as a tiger than two centuries as a sheep.

[1] Now at Windsor Castle; also the *humá*, or bird of paradise, covered with jewels, which glittered at the top of the canopy.

He was a good horseman and active in the field: also very industrious in writing, the pen being scarcely ever out of his hand. He could speak fluently Hindustani, Kannada, and Persian, but though the range of his studies was limited, he vainly regarded himself as one of the wisest of men. And so great was his conceit that he also imagined himself to be one of the most handsome. He affected an acquaintance with every known subject, and himself wrote detailed instructions on the most diversified matters, both civil and military, to all his subordinates. His rage for innovations, which has already been illustrated in the account of his reign (see above, p. 409) unsettled everything, while his dark and cruel bigotry blinded his perceptions, threw power into unworthy hands, and alienated from him whole classes of the most important of his subjects. Though perhaps he deceived himself into a belief that his measures were for the good of the people, they were really the outcome of caprice and self-conceit, which at length gave rise to suspicions of aberration of the mind.

The town suffered plunder for a day, and at last guards having been placed over the houses of the respectable persons, and four of the plunderers executed, the soldiery was effectually restrained, and tranquillity restored. This event was followed by the surrender of Fatteh Haidar, the eldest of the sons of Tipu, and of Purnaiya, Kamar-ud-Din Khan and other officers, on the following day. Circular orders were issued by General Harris, accompanied by communications from the Meer Soodoor, to the officers in charge of the different forts in the territories, to deliver their charges to the British authorities, and giving them general assurance of favour and protection. By these means the country submitted, the ryots returned to their peaceful occupations, and the land had rest from the incessant warfare of the past fifty years.

The disposal of the conquered territories engaged attention next. After a mature deliberation of the various interests involved in the question, the restoration of the descendant of the Rájas of Mysore to the sovereignty, under British protection, of a part of the dominions, and the division of the remainder between the allies, were the measures resolved upon.[1] The British share consisted of all the districts below the Gháts lying between their possessions on the eastern and western coasts, namely, Kanara, Coimbatore, &c., with such posts and fortresses as commanded the passes; and the island of Seringapatam. To the Nizam were assigned the districts of Gutti and Guramkonda, bordering on the cessions made in 1792, together with all the country north from

[1] By a Commission composed of General Harris, Colonel Arthur Wellesley, the Honourable Henry Wellesley, Lieut.-Colonel William Kirkpatrick, and Lieut.-Colonel Barry Close, the Nizam concurring.

Chitaldroog and Sira. For the Mahrattas, whose forces were not present at the siege, were reserved, on certain conditions, Harpanhalli, Sunda and Anegundi, with parts of the districts of Chitaldroog and Bednur above the Ghâts; but as they would not agree to the terms of the proposed treaty renouncing a claim to plunder, these districts were divided between the British and the Nizam.

The sons of Tipu were provided with liberal allowances, and removed from the scene of their former greatness to the fortress of Vellore.[1] The principal officers of the late Government were divided into three classes, according to their respective ranks,. and pensioned; the stipends varying from three thousand to two hundred and ten star pagodas per annum. To Mir Kamar-ud-Din Khan were assigned two jágirs, one from the Company and the other from the Nizam, and he was permitted to reside at Guramkonda. Purnaiya, who had been the principal financial minister under the late Government, having given satisfactory proof of his readiness to serve the new one in the same capacity, it was deemed advisable to appoint him Divan to the young Rája.[2] All negotiations regarding the revival of the kingdom of Mysore were considerately postponed till the departure of the sons of the Sultan from the capital, which took place on the 18th of June, 1799.

(Subsequently, in 1800, the Nizam ceded to the British the territories acquired from Mysore in 1792 and 1799, in return for a force of British troops to be stationed at Haidarabad. And in 1803 Holalkere, Mayakonda, and Harihar districts were given to Mysore by the British Government in exchange for parts of Punganur, Wynad, Yelusavirasime, and some other places contiguous to their boundary.)

The Brahmans having fixed upon the 30th of June as the most auspicious day for placing Krishna Rája Wodeyar on the *masnad*, the ceremony was performed at Mysore at noon on that day by the Commissioners, headed by General Harris, and accompanied by Mir Alam (the representative of the Nizam), under three volleys of musketry from the troops on the spot and a royal salute from the guns of Seringapatam. The deportment of the young prince, the despatch on the subject says, was remarkably decorous. Some high Musalman officers of the late Government spontaneously attended on the occasion. The inauguration having taken place under an open pandal, the spectators were very numerous, and it would be difficult to

[1] Five years later, on the occurrence of the mutiny at Vellore, they were removed to Calcutta.

[2] Tirumal Rao, previously referred to (p. 399), was also a candidate for this office, with the support of the Rani. But a letter on the subject was sent to her by Mr. Webbe, in Mahratta, signed *S'rí Veb* (in Devanagari characters), and Tirumal Rao was liberally pensioned. He lived at Madras till his death in 1815.

describe the joy which was visible in the countenances of all the Hindus present.

The rebuilding of the old palace of Mysore was at the same time commenced. Dr. Buchanan, writing in May 1800, says, "It is now so far advanced as to be a comfortable dwelling, and I found the young prince seated in it on a handsome throne. He has very much recovered his health, and though he is only between six and seven years of age, speaks and behaves with great propriety and decorum. From Indian etiquette, he endeavours in public to preserve a dignified gravity of countenance; but the attentions of Colonel Close, the Resident, make him sometimes relax, and then his face is very lively and interesting."

Purnaiya was now Divan and Regent, Colonel (afterwards Sir Barry) Close[1] was Resident, and Colonel Arthur Wellesley (the future Duke of Wellington) commanded the Division. The combined influence of such a triad was a sufficient guarantee for all that could render the State secure and prosperous. The disturbances caused by the Aigur chief in Manjarabad, and by Dhundia Wahag[2] in the north-west were soon quelled. Purnaiya's thorough knowledge of the resources of the country enabled him to add materially to the revenue, which was further swelled by the sale of the large stores of sandalwood which had accumulated for several years owing to Tipu's prohibition of its export from his dominions; so that although the Mysore State, according to treaty, kept a considerable body of troops in the field during the Mahratta war, the treasury continued to fill. "The

[1] He came out as a cadet in 1771, and was in Tellicherry during its siege by Haidar: served as Deputy-Adjutant-General with the army before Seringapatam in 1792, and as Adjutant-General at the final capture in 1799. He was then appointed Resident in Mysore. In 1801 he was transferred as Resident to Poona, where he remained till his retirement in 1811, and died in England in 1813. He was an accomplished Arabic and Persian scholar. Closepet is named after him.

[2] He was a Mahratta by descent, and a native of Channagiri. From 1780 he served as a horseman in Haidar's army, but during the invasion of Lord Cornwallis decamped with a few followers and as much booty as they could get hold of to Dharwar, where he lived by plundering. In 1794 he was induced to come to Seringapatam with the prospect of being received into Tipu's service with all his followers, consisting of two hundred horse. But refusing to embrace Islam, he was forcibly converted and thrust into prison. At the capture of Seringapatam he was found chained to the wall like a wild beast, and the British soldiers out of pity at once freed him. He then escaped to the Mahratta country, and collecting a large force committed many depredations in the north-west. In 1800, having assumed the title of "King of the Two Worlds," he threatened the Mysore frontier with a body of 5,000 horse. Colonel Wellesley went against him, and pursuing him for months from point to point without being able to come up with him, at last succeeded in surprising him, when this freebooter's army was entirely routed and he himself killed in a cavalry charge led in person by his distinguished opponent.

settlement of Mysore," as Major Wilks remarks, "was distinguished from all preceding measures of British policy, was quoted with applause in the remotest parts of India, and was acknowledged with unlimited gratitude by the people to be governed, by leaving every office, civil and military, to be filled by the natives themselves, with the single guard of those powers of interposition in the internal affairs of the government which were reserved by a special provision of the treaty. . The experiment was new, and with relation to its remote consequences, of momentous importance." It was, therefore, no little satisfaction to the Governor-General, the Marquess of Wellesley, in 1804, to record it as his deliberate declaration, that during the past five years, "the affairs of the government of Mysore had been conducted with a degree of regularity, wisdom, discretion and justice unparalleled in any Native State in India."

Of the young prince himself we obtain a further glimpse in 1806, from Colonel Welsh's account of a procession from Nanjangud to Kalale. "The young Rajah," he writes, "was now twelve years old, and as promising a boy as I ever beheld; indeed, Major Wilks, who was a man of sense and refinement, declared he had never known a finer youth, European or native. His manners were far above his age, but he was then under the tutelage of the celebrated Poorniah. . During the procession, which took place on horseback, old Poorniah checked the ardour of the Rajah, and we moved at a snail's pace for the first three miles, when this fine boy, longing for a gallop, obtained his guardian's leave, exchanged his State turban for a plain one, and disengaging himself from several valuable chains and jewels which decorated his person, gave his horse the whip, and commenced a *lunge*, which he managed with grace and dexterity, while we formed a ring outside and enjoyed the exhibition. After indulging himself for a few minutes, in which we much admired his manliness, he resumed his dress, and we proceeded in state to the end of the march." [1]

Beyond advice from the Resident, little interference with internal affairs was called for during the administration of Purnaiya, which continued till 1811. "The knowledge of the right of interposing had proved sufficient of itself to prevent any frequent or urgent necessity for its exercise, and to secure in a respectable degree the protection of the people in the enjoyment of their most important rights." Purnaiya's system of government was no doubt absolute; and, as a financier, the accumulation of surplus revenue presented itself to him as a prime end to be attained. It may be questioned, therefore,

[1] *Military Reminiscences, from a Journal of Forty Years' Active Service in the East Indies.* By Colonel James Welsh.

whether he did not to some extent enrich the treasury at the expense of the State, by narrowing the resources of the people ; for by 1811 he had amassed in the public coffers upwards of two crores of rupees. He was a minister of the old school, and viewed with chagrin any attempts which the Rája, as he came to years of discretion, made to assert his prerogatives. This provoked the resentment of the young Rája, surrounded as he was by parasites who constantly urged him to take the government into his own hands. In 1811 he expressed to the Resident a wish to govern for himself. The Resident endeavoured to secure a share in the administration for Purnaiya, but the latter declined further office, and retired to Seringapatam, where he soon after died, on the 28th of March 1812. Old and infirm, after a life of unusual activity and care, "I am going to the land of my fathers," was the tranquil message he sent a few days before to his friend Colonel Hill, the Commandant of the fort. "Say that I am travelling the same road," was the reply returned, and he survived the minister but a short time.

Purnaiya was a Brahman of the Mádhva sect, descended from a family of the Coimbatore country. His talents were recognized by Haidar, and he was made not only minister of finance, but was also put in charge of the commissariat. He was short and stout in person, but much more active than Brahmans in general are, and Haidar rewarded him with a grant of the village of Maruhalli (south-west of Mysore). His tact and the influence he had acquired are well illustrated by the course he pursued, already related, at the death of Haidar, and the means he took to secure the succession to Tipu. His services to the latter were of the highest value, and next to Mir Sadak he enjoyed greater power under the Sultan than any other person. But he was in no small danger from the bigotry of his master. For the Sultan, it is said, once proposed to him to become a Musalman. "I am your servant," replied Purnaiya, and hastily withdrew. The Sultan's mother, who had great influence with her son, on hearing of what had occurred, strongly remonstrated with him on his folly, and he had the sense to see the danger of proceeding any further in the matter. It must have been with a sense of relief, therefore, that Purnaiya, when, after the fall of Seringapatam, he was summoned to surrender, and assured that he had no cause to be alarmed, replied, "How can I hesitate to surrender to a nation who are the protectors of my tribe from Kás'i to Rámes'varam ?" The subsequent distinguished career of Purnaiya has been made plain by our history. In 1807 he was offered a jágir in recognition of his services, and chose the fertile tract of Yelandur, on the borders of Mysore and Coimbatore.

Mr. Josiah Webbe had been appointed Resident in Mysore in succession to Colonel Close, but only consented to hold the office temporarily, as he was anxious to leave India. Until his arrival Mr. J. H. Peile acted as Resident for a few months. Mr. Webbe had been for many years Chief Secretary to the Government of Madras, and was intimately concerned in all the transactions of the south from the days of Haidar. He left Mysore to go as Resident to Nagpore, and from there went in June 1804, to relieve Malcolm at Gwalior, where he fell sick and died at a critical time in the spring of 1805. An obelisk erected to his memory by Purnaiya is conspicuous to the north of Seringapatam.

Major (afterwards Sir John) Malcolm[1] became Resident of Mysore at the beginning of 1803, but was destined to continue as an actor on a far wider stage, and was one of the foremost men of his day in India. Only the briefest outline can here be given of his illustrious career. Serving in the army before Seringapatam in 1792, he was selected by Lord Cornwallis to be Persian interpreter with the Nizam's contingent. He returned to England in 1794, and came out with General (Sir Alured) Clarke next year as Military Secretary on the secret expedition destined for India, in which the ships were driven out of their course to South America, and eventually arrived off the Cape of Good Hope at a most opportune moment, which enabled them to decide the contest with the Dutch that made the Cape a British colony. He continued as Military Secretary under General Harris at Madras, and in 1798 was appointed Assistant Resident at Haidarabad, where he nearly lost his life in carrying out the disbandment of the French forces. In 1799 he was First Secretary to the Commissioners for the settlement of Mysore (Captain Thomas Munro being the other), and immediately after was sent as Envoy to Persia by the Governor-General, Lord Wellesley, who had early discerned his abilities. In March 1803, he joined the army of General Wellesley, marching against the Mahrattas, at Harihar, as representative of the Governor-General, and was afterwards sent on a mission to Bombay. Thus it was not till November 1804 that he came to Mysore itself, and after the stirring events in which

[1] He was of a Scotch family and not thirteen when taken by his uncle before the Directors of the East India Company in 1781 for a cadetship. They were about to refuse a commission in their army to such a boy, but on one of the Directors in a disparaging manner saying to him, "Why, my little man, what would you do if you met Haidar Ali?" "I'd out with my sword and cut off his head," was the unexpected reply, on which they passed him at once. Boy Malcolm, as he was called, became very popular and developed great talents. When sent in charge of the escort for exchange of prisoners with Tipu, the officer of the opposite party, seeing such a stripling, asked where the commanding officer was. "I am the commanding officer," was the answer he was astonished to receive.

he had been engaged was turning his thoughts to a life of literary leisure and the compilation of his History of Persia, when, in March 1805, he was again summoned to Calcutta by the Governor-General, and was employed in negotiations with Holkar and Sindiah. In fact, "send Malcolm" had come to be the remedy proposed for every emergency. He returned to Mysore in April 1807, and was married there in July to the daughter of an officer in Madras. But in February 1808, he was a second time sent to Persia. Returning to Madras in 1809, he was ordered to Masulipatam to repress the mutiny of the European regiment, and was afterwards reappointed to Persia. In 1812 he received five years' furlough to England. On his return to India he was engaged in operations against the Pindaris and Mahrattas, and in 1819 took charge of the administration of Central India. He went home again in 1822, and was subsequently appointed Governor of Bombay. After a most distinguished career in India[1] he retired to England in 1831, entered Parliament, and died in London of influenza in 1833. A statue of him by Chantrey was erected in Westminster Abbey and one in Bombay.

He was very tall and strong, and of untiring activity in body and mind. Simple, manly, generous and accessible to all, he was universally beloved both by Europeans and natives. Colonel Welsh, who met him at Belgaum at the end of 1828, when he was Governor of Bombay, says, "He proved to be the same honest John Malcolm I knew twenty-five years ago, in General Wellesley's army. All the fire, strength and activity of youth, with those abilities which enable him to transact his business in less time than most other men would take to consider about it."

During the prolonged absence of the permanent Resident the duties of the office were ably discharged by Major Mark Wilks, whose History of Mysore is a monument of his knowledge of and interest in the country. In about 1808 he went to England and afterwards became Governor of St. Helena, an appointment which he held till the imprisonment on that island of the Emperor Napoleon Buonaparte. He was succeeded at Mysore by the Hon. Arthur H. Cole, who had been the Assistant Resident. This gentleman, a connection of the Earls of Enniskillen, held the position of Resident for many years, but I have not been able to obtain any particular information about him, except that I believe he had been in Parliament. On leaving Mysore he went to the Mauritius. In 1825 Mr. J. A. Casamaijor, of

[1] The Duke of Wellington, writing to him in 1824, says, "I can answer for it that from the year 1796 no great transaction has taken place in the East in which you have not played a principal, most useful, conspicuous and honourable part; and you have in many services, diplomatic as well as military, been distinguished by successes, any one of which in ordinary circumstances would have been deemed sufficient for the life of a man."

the Madras Civil Service, was Resident, and continued so till 1834, when he was transferred to Travancore.[1]

To return to the Rája of Mysore. Krishna Rája Wodeyar, then about sixteen years of age, commenced his rule under the most favourable auspices, with a treasury well filled and the good wishes of the whole country. Flatterers and parasites, however, gained too ready an ear, and in 1814 the Resident was compelled to report that the Rája had already dissipated on worthless persons the treasure accumulated by Purnaiya, while the pay of his troops was several months in arrears. Though possessed of great natural intelligence, he lacked the administrative ability which was essential for governing the country, and was yet too jealous to delegate the necessary authority to the Divan. While the Resident's advice was disregarded, a lute player named Venkat Subbaiya, and other indifferent characters, obtained an extraordinary influence over him. The disinterested counsels of the few respectable native gentlemen at his court met with no more attention than those of the Resident, and although sharply rebuked by the British Government and warned of the inevitable result of his extravagance and sensuality, the Rája turned a deaf ear to all remonstrance. In 1817 he was foolish enough to enter into political intrigues which gave umbrage to the British, though they did not proceed from want of loyalty on his part.

Colonel Welsh, an eye-witness whom we have already quoted, writing of Bangalore so early as October 1811, says, "The Rajah of Mysore paid us a visit for the races, accompanied by the Hon. A. Cole and his staff. . I have formerly mentioned this prince as a most promising youth; I much fear he has now broken that promise, for, so far as outward appearance goes, no two beings could be more different." Again, writing in 1830, he says:—"The after-life of this prince, I am truly sorry to state, has not fulfilled the promise of his youth. . I must own I had never felt such a predilection for any native as for this young Rajah; and Major Wilks's accounts of the proofs he gave of good sense and honourable feeling made an impression on my mind which led me afterwards to hope, when hope was vain; for on acquiring the entire management, he threw himself into the most improper hands, and disregarded the advice of his real friends to such a degree that some of the most important stations were filled by low and insignificant wretches, and the whole country groaned under oppression. . He has long ruled his own kingdom,

[1] He eventually retired to the Nilagiri Hills, where in 1842 he bought the residence and property of the Governor, Lord Elphinstone, at Kaity, and at his death in 1849 bequeathed it to the Basel Lutheran Mission.

and with able and honourable advice, which he has never wanted in Major Wilks's successors, might have acquired a name among his subjects equal to that of his virtuous minister (Poorniah); but he has miserably failed, and those who now frequent that once well-regulated country hear nothing but complaints against the Sovereign in every village."

"All remonstrances failed to check the Rája's downward course. High offices of State were sold to the highest bidder, while the people were oppressed by the system of *sharti*, which had its origin under Purnaiya's regency. *Sharti* was a contract made by the Amildar that he would realize for the Government a certain amount of revenue; that if his collections should fall short of that amount he would make good the deficiency, and that if they exceeded it the surplus should be paid to the Government. The amount which the Amildar thus engaged to realize was generally an increase on what had been obtained the year preceding. In the *muchalika* or agreement the Amildar usually bound himself not to oppress the ryots, nor impose any new taxes, nor compel the ryots to purchase the Government share of grain, but this proviso was merely formal; for any violation of the contractors in any of these points when represented to the Government was taken no notice of. The consequence was that the ryots became impoverished, the revenues more embarrassed, and the Amildars themselves frequently suffered losses. The distress arising from this state of things, and from the neglect of duties incumbent upon Government, fell heavily upon the ryots, who groaned under the oppression of every tyrannical *sharti* Faujdar and Amildar."

As another instance of maladministration which prevailed it may be mentioned that the courts of justice had no power to pass sentence, their prerogative being limited to the mere finding of guilty or not guilty. The Rája, who had retained the power of passing sentence, was too indolent to attend to business, and the result was that the jails remained for years crowded with prisoners who, if guilty at all, were only guilty of light offences.

Once, in 1825, the venerable Sir Thomas Munro, Governor of Madras, actuated by a sincere desire to avert the ruin which threatened the Rája, visited Mysore and remonstrated personally with him. In his minute upon the interview, he writes, "I concluded by saying that the disorder of the Rajah's affairs had reached such a height as would justify the Government in acting upon the Fourth Article of the Treaty; but that as a direct interference in the administration, or the assumption for a time of part of the Mysore territory, could not be undertaken without lessening the dignity of his Highness, and shaking his authority in such a manner that it would be impracticable ever to

re-establish it, I was unwilling to adopt such a course until the last extremity, and wished to give him an opportunity of restoring order himself. But if reform was not immediately begun, direct interference would be unavoidable." The effect of this advice was at best transient, and Munro unfortunately died of cholera at Gutti in July, 1827. Between this time and 1831 matters went from bad to worse. The Resident, Mr. Cassamaijor, strove ineffectually to arrest the Rája's downfall, but did not succeed in securing his confidence. His Highness seemed destined to place his trust always in unworthy advisers.

In 1830 symptoms of disaffection began to show themselves in the Nagar country. A Brahman named Rama Rao, from the Mahratta territory, who had served with credit under Haidar and Tipu as a commander of cavalry, had been appointed Faujdar of Nagar in 1799, and held that office till 1805. He afterwards became Bakshi of the Sowar Cutcherry, and was one of the Rája's most intimate counsellors, and virtually the Dewan for a few years after Purnaiya's retirement. By his influence almost every public situation of importance in Nagar down to 1828 was, with a slight interruption, filled up by his dependents or relatives. Though charged with flagrant frauds and embezzlements, their conduct was shielded from scrutiny; while some of them even enriched themselves by giving encouragement to robbers —for whose operations the wild nature of the country offers many facilities—and partaking of the plunder. The outstanding balances of revenue having accumulated to upwards of thirteen lakhs of rupees, the Bakshi contrived that he himself should be deputed to inquire into and settle the claims. He made large remissions to the extent of seven-and-a-half lakhs, and returned to the Darbar in 1828. The Rája being led to question the propriety of these proceedings, resolved to appoint a relative of his own, named Vira Raj Arasu, as Faujdar. The latter discovered that much fraud had been practised in the remissions, and re-imposed the claims, which naturally excited dissatisfaction in those affected. The Bakshi's party, also, fearful of the consequences to themselves if the inquiries which Vira Raj Arasu was pursuing should expose the corruption and malversation they had practised during so many years, connived at the seditious proceedings of a pretender to the throne of Nagar.[1]

[1] This man, whose real name was Sádar Malla, was the son of a common ryot of Kumsi. Before the age of twenty he had been concerned in several robberies and spent two years in jail. He afterwards entered the service of a Jangama who had been priest of the last Náyak of Bednur and was possessed of his seal rings. These, on the death of the priest, Sádar Malla got hold of, and assuming the name of Búdi Basavappa, wandered about the country secretly giving out that he was a descendant

In August (1830) a force in his name attempted to surprise the fort of Anantapur, but failed. At the same period the ryots in various places assembled in *kúṭa* or indignation meetings. On the ground of these commotions, Vira Raj Arasu was recalled, and the former Faujdar of the Bakshi's party restored. He made use of troops to disperse the ryots at Hole Honnur on the 7th December, and several were killed and wounded. But they rallied near Honnali and were joined by larger numbers from all parts, who openly espoused the cause of the pretender. The Faujdar again attacked them with a regiment of horse and broke up the assembly. The Palegar of Tarikere now suddenly left Mysore and joined the insurgents, seizing on Kaldroog and Kámandroog. The Faujdar of Bangalore also reported his Division to be in a general state of insurrection. Strong reinforcements of troops were sent to the disturbed districts in the Bangalore, Chitaldroog and Nagar Divisions; and the Rája set out with a considerable force on the 13th December for Chanráypatna, where it was proclaimed that the grievances of the ryots would be inquired into. Investigations were made by the Dewan for some days; several persons were hanged, others flogged or mutilated. Meanwhile there were encounters in various parts between the insurgents and the troops.

In January the Rája's camp was established at Hebbur, and the Dewan was despatched with troops against Kámandroog, while Annappa, an officer of cavalry, was appointed to supersede the Faujdar of Nagar. Annappa maintained an arduous conflict for several weeks with the insurgents, and was forced to take refuge in Anantapur. Here he remained till nearly starved, when addressing his troops, he said, "Rather than die in this way of starvation, let us go and fight, and die like soldiers." They responded, and sallying forth on the Shikarpur road, fought their way stoutly for fifteen miles to Masur in the Company's territory, whence they retreated to Harihar. The operations against Kámandroog failed, but Kaldroog was taken in February. British aid was now applied for, and a regiment started from Harihar. At the same time, Lieut. Rochfort, of the Resident's escort, taking command of the Mysore troops, captured Kámandroog on the 3rd of March, the palegars escaping during the assault. Hence

of the Nagar family. About 1812 he was imprisoned for some time in Canara for robbery, and on release obtained a passport bearing the seal of the Zillah court, in which was entered his name as he himself gave it, Búdi Basavappa Nagar Khávind. This document was now exhibited as a sannad from the East India Company recognizing his claims. These deceptions were effectual, and when the discontent to which we have alluded was at its height, taking advantage of it to promise a full remission of all balances and a reduction of the assessment, he was, about April 1830, formally recognized by several patels as the sovereign of Nagar.

Lieut. Rochfort marched to Shimoga, and hearing that a large body of insurgents had taken Honnali, he proceeded there and took it by assault on the 12th. He now marched west, and carrying several stockades, temporarily recovered Nagar or Bednur on the 26th, and Chandragutti on the 6th of April. Meanwhile, enriched by the plunder of district treasuries and other depredations, the rebel leaders were joined by bodies of armed men, both horse and foot. Attracted by the hope of plunder, 1,500 Candachar peons of the Bedar caste also deserted to them.

Owing to the increasing strength of the insurgents, the employment of the entire subsidiary force became imperative. One regiment had to retire from a fortified barrier at Fattepet, but the British forces being concentrated at Shimoga, moved on the 31st of May by a circuitous route to Nagar, which was finally taken on the 12th of June, and a death-blow given to the insurrection. By the next month the majority of the ryots had returned to their villages under the protection of letters of cowl. But the rebel leaders continued at large with marauding bands, committing outrages and raising disturbances for many months.

The state of Mysore had been for some time attracting the notice of the Government of India, and as it was considered that the insurrection was of so serious a character as to call for special inquiry, the Governor-General ordered the formation of a Committee[1] to investigate the "origin, progress and suppression of the recent disturbances in Mysore." Their report showed that the misgovernment of the Rája had produced grave and widely-spread discontent, that the revenues were rapidly failing, and that mal-administration was rampant in all departments of the State. The Governor-General, Lord William Bentinck, therefore determined upon acting on the fourth and fifth articles of the subsidiary treaty. In a letter addressed to the Rája, after recounting at some length and in forcible terms the circumstances under which the Rája had been placed on the throne, the objects of the subsidiary treaty, and the mismanagement, tyranny, and oppression of the Rája's government, Lord William Bentinck went on to say, "I have in consequence felt it to be indispensable, as well with reference to the stipulations of the treaty above quoted, as from a regard to the obligation of the protective character which the British Government holds towards the State of Mysore, to interfere for its preservation, and to save the various interests at stake from further ruin. It has seemed to me that in order to do this effectually, it will be necessary to transfer the entire administration of the country into the hands of British officers; and I have accordingly determined to

[1] The members were Major-General Hawker, Colonel W. Morison, Mr. J. M. Macleod, and Lieut.-Col. (afterwards Sir Mark) Cubbon.

nominate two Commissioners for the purpose, who will proceed immediately to Mysore.

"I now therefore give to your Highness this formal and final notice, and I request your Highness to consider this letter in that light; that is, as the notice required by the treaty to be given to your Highness of the measure determined upon for the assumption and management of the Mysore territory in the case stipulated. I beg of your Highness, therefore, to issue the requisite orders and proclamations to the officers and authorities of Mysore, within ten days from the date when this letter may be delivered to your Highness, for giving effect to the transfer of the territory, and investing the British Commissioners with full authority in all departments, so as to enable them to proceed to take charge and carry on affairs as they have been ordered, or may be hereafter instructed." To the Rája, in accordance with the treaty, the sum of one lakh of star pagodas per annum was allotted for his private expenses.

The Rája, who received this mandate at the time of the Dasara (19th Oct. 1831), peaceably surrendered the reins of government, and continued to reside in his palace at Mysore. The Governor-General vested the government in the hands of two Commissioners, the senior of whom was appointed by himself, and the junior by the Madras Government. The senior Commissioner, who possessed what was termed a casting-vote, and was therefore enabled to overrule his colleague on every point, was aided in financial matters by the Divan, which latter post was not abolished until 1834. Up to June 1832 the Commissioners were under the Government of Madras, but in that month they were made immediately subordinate to the Government of India. It was soon found that a Board of two Commissioners, who naturally constantly differed in opinion, was an agency ill-adapted for the organization of a proper system of government.[1] Accordingly, in April 1834, one Commissioner, Colonel Morison, was appointed for the whole Province, and on his transfer to Calcutta, Colonel (afterwards Sir Mark) Cubbon took charge in June. But the office of Resident was still maintained, and thus a dual and divided interest continued to exist. Colonel J. S. Fraser, who had just carried out the deposition of the Rája of Coorg and the annexation of that country, was in June 1834 appointed Resident in Mysore and Commissioner

[1] The following is a list of these Commissioners, with their dates of office:—

Senior		*Junior*	
Colonel J. Briggs	4 Oct. 1831	Mr. C. M. Lushington	4 Oct. 1831
		,, C. D. Drury	18 Feb. 1832
		,, J. M. Macleod	16 June 1832
,, W. Morison	6 Feb. 1833	Colonel Mark Cubbon	17 Feb. 1834

of Coorg. In 1836 he was made Resident in Travancore, and in 1838 at Haidarabad. Major R. D. Stokes succeeded him at Mysore, and remained till 1843, when the post of Resident was abolished.

A proposal, it appears, had been made by Lord William Bentinck before he left India, at the time of General Fraser's appointment, to restore the districts of Mysore, Ashtagram and Manjarabad to the Rája, and to annex the remainder of the country as an equivalent for the subsidy. But the reply of the Court of Directors, which arrived in the time of Sir (afterwards Lord) Charles Metcalfe, and was made known to the Rája by Lord Auckland, the new Governor-General, refused to sanction either the partition of a State whose integrity had been guaranteed by treaty, or the subjection of the inhabitants of any portion, however small, to the misrule from which they had been rescued.

The instructions of the Governor-General to the Madras Government on the first assumption of the Province had been to the effect that "the agency under the Commissioners should be exclusively native; indeed, that the existing native institutions should be carefully maintained." These views were subsequently confirmed by the Court of Directors in their letter dated 25th September 1835, in which they stated that they were "desirous of adhering as far as can be done to the native usage, and not to introduce a system which cannot be worked hereafter by native agency." The above instructions were, as far as possible, adhered to in the early days of the Commission. But in process of time it became known that the machinery of government was rotten to the core. Moreover, the opposing influence of the Rája and his adherents throughout the country hampered the carrying out of all new measures and added to the difficulties of the situation. The powers of the various descriptions of courts were ill-defined, and involved endless appeals. The evils involved by this state of things lay too deep to be remedied by one Commissioner aided by the existing native agency, and it was therefore determined to substitute four European Superintendents for the Native Faujdars. Later on European Assistants were also appointed. The Huzúr Adálat, composed of Native Judges, was allowed to remain the highest judicial authority in the Province, but its sentences were made subject to the confirmation of the Commissioner.

Lord Dalhousie, who visited Mysore in 1855, recorded his opinion that the administration had been highly honourable to the British name and reflected the utmost credit upon the exertions of the valuable body of officers by whom such great results had been accomplished. Several changes were soon after introduced, arising out of the renewal of the Company's charter in 1854. A Judicial

Commissioner was appointed, and departments were formed for Public Works and Public Instruction.

The abolition of the post of Resident was at first felt by the Rája as a great blow, but it brought him into closer relations with the Commissioner, and from 1847 they continued on the most friendly terms. Before this, however, in 1844, in a letter to Lord Hardinge, then Governor-General, the Rája urged his claim to the restoration of his kingdom, to which the Directors replied in 1847, that "the real hindrance is the hazard which would be incurred to the prosperity and good government which the country now enjoys by replacing it under a ruler known by experience to be thoroughly incompetent." No indication, indeed, had been given that his rule would be any better than before. Though receiving on an average eleven lakhs a year, his extravagance had accumulated private debts for the settlement of which the appointment of a special officer, Mr. (afterwards Sir) J. P. Grant, was necessary, and nearly thirty-five lakhs were paid. The public debts due from the time of his deposition were not extinguished till 1857. Lord Dalhousie, in view of the Rája's age (then 62), his having no heir, and his expressed disinclination to adopt, anticipated that Mysore, at his decease, would lapse to the British Government, and that the good work which had been so well begun in it would be completed.

Such was the form of administration under Sir Mark Cubbon. The history of the Province under his rule is that of a people made happy by release from serfdom, and of a ruined State restored to financial prosperity. There was a gradual rise of the revenue notwithstanding that no less than seven hundred and sixty-nine petty items of taxation were swept away.[1] In addition, the abuses in the working of the land revenue, which had crept in since the time of Purnaiya, were removed; the payment of the assessment was made as easy as possible to the ryot by dividing it into five instalments, payable with reference to the periods of harvest; the system of *baṭáyi* or payment of assessment in kind, which exposed the ryot to numberless exactions, was in great measure abolished, and the land assessment in many cases was lowered.

At the beginning of 1860 the intention was formed of transferring the superintendence of Mysore affairs from the Governor-General to the Government of Madras, then under Sir Charles Trevelyan, thus reversing what had been done in 1832; but the step was so distasteful

[1] Among these were such whimsical taxes as taxes on marriage, on incontinency, on a child being born, on its being given a name, and on its head being shaved. In one village the inhabitants had to pay a tax because their ancestors had failed to find the stray horse of a palegar, and any one passing a particular spot in Nagar without keeping his hands close to his side had to pay a tax. All these taxes were formally entered in the government records as part of the resources of the state.

to the Rája, no less than to Sir Mark Cubbon, who tendered his resignation, that it was withdrawn. Early the following year Sir Mark was attacked with serious illness, which compelled him to resign, and he died at Suez on his way to England in April 1861, at an advanced age, having spent the whole of the century in India. He left Mysore full of honours as full of years, and his memory is cherished with affection by the people over whom he ruled so long.

He was the son of a Manx clergyman, and came out to India in 1801, at the age of 16. On arrival he joined his uncle, Major Wilks, at the Mysore Residency, and there gained an early acquaintance with native habits. Before long he was appointed to the Commissariat Department at Hunsur, and became the head of it when Colonel Morison was made Resident of Travancore. This officer returned to Mysore as Senior Commissioner in 1833, and was next year appointed to the Council of the Governor-General at Calcutta,[1] on which Colonel Cubbon, then lately made Junior Commissioner, succeeded him and became the sole Commissioner.[2]

He was a statesman of the old school, and, says General Dobbs, was particularly in his element when engaged in disentangling webs of native intrigue. In this he fought the natives with their own weapons, with one noble exception—he abhorred and never resorted to espionage, and often spoke of the failure of Europeans who descended to such tactics. He was intensely conservative, but his strong reluctance to change was corrected by his wide reading of the public journals, then few in number. To his deputies, in all matters in which he considered they possessed practical knowledge, he allowed great liberty in exercising their own judgment, and was generous and kind-hearted in support of them. He was passionately fond of horses, and kept up to fifty or more, chiefly Arabs, in his stables as pets. To encourage the production of high-bred

[1] A complimentary Order issued in Nov. 1839, on his departure to England, says, "His Lordship in Council would particularly draw the attention of the young officers of the Madras Army to the career of Colonel Morison." He was transferred from the line to the artillery solely on account of his talents, and made Instructor. He afterwards became Surveyor-General, and when the Commissariat department was formed, Commissary-General. His subsequent appointments have been stated above. He was the first Madras officer, since the days of Lord Clive, selected for a seat in the Supreme Council.

[2] I regret that more information could not be obtained regarding an officer who filled so prominent a position for so long a period with such distinguished success. My efforts to get further particulars from the Isle of Man or from surviving friends were not successful, and I am assured, on the best authority, that before leaving India, Sir Mark, in spite of the remonstrances of friends, deliberately destroyed all his papers. The sketch above given is taken from *Reminiscences of Life in Mysore, South Africa, and Burmah*, by Major-General R. S. Dobbs, a well-known officer of the Mysore Commission throughout the whole period referred to.

animals he had a number trained for the races, but did not run them, preferring to pay the fines. Though he did not go to church, he was particular in enforcing the observance of Sunday as a day of rest in all courts and offices, and would not receive native visitors on that day. His favourite retreat was Nandidroog, where he spent several months in the year.

We obtain a delightful picture of him in 1858, at the time of Lady Canning's visit. Her companion, the Hon. Mrs. Stuart, writes:—"At seven in the morning (22nd March) drove up, through the lines of the 60th Rifles, to General Cubbon's charming bungalow at Bangalore. . We found the whole house prepared for us, the chivalrous old man of 74 having put himself into a tent. He is a very handsome, keen-eyed, intelligent man, and the quantity of anecdote of the deepest interest that he has told us has been more entertaining than I can describe." Lady Canning, writing from Nandidroog, says:—"I am visiting a charming old General, Sir Mark Cubbon, 1,500 feet above the tableland of Bangalore, and with a view over about 150 miles of country on all sides. It is cool fresh air and a very pleasant spot, and the old gentleman is very delightful. He has been all this century in India, but seems to know all that has gone on all over the world, and is the most *grand seigneur* old man I almost ever saw."[1]

His remains were conveyed by Dr. Campbell, the Durbar Surgeon, who had accompanied him on the voyage, to the Isle of Man, where he was met by Colonels Macqueen and Haines, old officers of the Mysore Commission, and the body was laid to rest in the family vault in a public funeral in which the whole island took part. As the mourners left the tomb, "There lies," said the archdeacon, "the greatest man this island has produced for centuries back." An equestrian statue, by Baron Marochetti, was erected to his memory at Bangalore by public subscription, and stands in front of the Public Offices.

The control of India had now passed from the Company to the Crown, so, on the departure of Sir Mark Cubbon, the Rája, encouraged by the friendly terms in which Lord Canning had in the previous year acknowledged his steadfastness during the mutiny, and had supported his objection to be transferred to the control of Madras, as well as by his proclaimed goodwill to the native princes of India, thought the opportunity favourable for again bringing forward his claims to the restoration of his country. He accordingly addressed Lord Canning on the subject in February 1861. That nobleman, in

[1] *The Story of Two Noble Lives*, by A. J. C. Hare.

a reply dated in March 1862, the day before he left for England, took exception to the terms of the petition as ill-advised, and rejected it, stating that "whilst the British Government had been careful to satisfy the right which it originally conceded to your Highness . . it is equally alive to its obligations to the people of Mysore and to the responsibility for their prosperity and welfare of which it cannot divest itself." The Rája, however, renewed his appeal through the new Viceroy, Lord Elgin. The decision of the Home Government, rejecting the appeal, on the ground that "the reinstatement of your Highness in the administration of the country is incompatible with the true interests of the people of Mysore," was made known to him at the end of 1863, on which the Rája announced his intention of adopting a son. His debts had now again accumulated, since the last clearance of them, to fifty-five-and-a-half lakhs, and two officers were appointed for their liquidation.

Sir Mark Cubbon handed over charge to Mr. C. B. Saunders, the Judicial Commissioner, who conducted the administration till the arrival in Feb. 1862 of the new Commissioner, Mr. L. B. Bowring,[1] and the latter, with the interval of a year's leave in 1866–7, during which Mr. Saunders again officiated, held office until 1870. During this period many radical changes were effected. Mysore had hitherto been a non-regulation province. In 1862 the administration was re-organized on the model of the Punjab system, and other reforms were set on foot all tending towards the introduction of the regulation system. The Province was now formed into three Divisions, sub-divided into eight Districts, each Division being placed under a Superintendent with enlarged powers, and each District in charge of a Deputy Superintendent, aided by Assistant Superintendents. The department of finance underwent at the same time a sweeping reform, and in place of the large discretion previously allowed to officers of all grades in regard to the disbursement of moneys, the Indian budget system of audit and accounts was introduced.

In 1863 was commenced a much-needed revenue survey and settlement, for the purposes of obtaining an accurate land measurement, of regulating the customary land tax, and of preserving all proprietary and other rights connected with the soil. In conjunction with this, the field assessment was fixed for thirty years, thus securing to the cultivator the full advantages of a lease for that period without burdening him with any

[1] Mr. Bowring, of the Bengal Civil Service, had been Assistant-Resident at Lahore in 1847, and subsequently in the Punjab Commission. From 1858 to 1862 he was Private Secretary to the Governor-General, Lord Canning. Created C.S.I. in 1867, and retired to England in 1870. The Bowring Institute in Bangalore was erected, partly by subscriptions, as a memorial to him.

condition beyond that of discharging the assessment for the single year to which his engagements extend. Soon after, it was found necessary to form an inam commission, to inquire into the validity of titles to lands held by individuals or religious institutions as real or pretended endowments from the sovereigns of the country, considerable alienations of whole villages having been made during the administration of the Rája. The conservation of the numerous irrigation channels and of the valuable forests of the country received attention; and as judicial work grew heavier, judicial assistants were appointed, one for each District, for the disposal of civil suits. Education was greatly extended. Municipalities were established. In short, there was scarcely a branch of the administration but came under the scrutiny and reforming hand of the untiring and energetic head of the Government.

Meanwhile affairs had taken a turn of the utmost importance to the fortunes of the Mysore royal family. In June 1865 the Rája adopted a scion, then two years old, of one of the leading families of his house,[1] who on his adoption received the name of Cháma Rájéndra. Whether this adoption would be recognized by the British Government was for some time doubtful, and questions asked in the House of Commons elicited no positive or final answer. In 1866 a deputation, headed by Sir H. Rawlinson, waited on the Secretary of State for India, Lord Cranborne (now Marquess of Salisbury), to urge upon him a reconsideration of the whole case of Mysore, more particularly as modified by the adoption; and later on, a petition, to which several old Indian officers had added their signatures, was presented to the House of Commons by Mr. John Stuart Mill, praying that "your Honourable House will take such steps as may seem in your wisdom most efficacious for ensuring, with the least possible delay, the re-establishment of a Native Government in the tributary State of Mysore, with every possible security for British interests and for the prosperity and happiness of the people of the country."

In April 1867 Viscount Cranborne stated to the House of Commons the decision to which the Government (of which Mr. Disraeli was Prime Minister) had come, influenced by the belief that the existence of well-governed native States is a benefit to the stability of British rule; and on the 16th Sir Stafford Northcote, then Secretary of State for India, penned the despatch to the Governor-General which decided the future fate of Mysore. After stating that no hope could be held

[1] He was the third son of Chikka Krishna Arasu of the Bettadakote family: a descendant, by adoption, of Katti Gopálráj Arasu, father of Krishna Rája II.'s wife Lakshmammanni, who signed the treaty of Seringapatam in 1799.

out that the previous decision regarding the reinstatement of the Maharaja himself would be reversed, he went on to say :—

"Without entering upon any minute examination of the terms of the Treaties of 1799, Her Majesty's Government recognize in the policy which dictated that settlement, a desire to provide for the maintenance of an Indian dynasty on the throne of Mysore, upon terms which should at once afford a guarantee for the good government of the people, and for the security of British rights and interests. Her Majesty is animated by the same desire, and shares the views to which I have referred. It is her earnest wish that those portions of India which are not at present under her immediate dominion may continue to flourish under native Indian rulers, co-operating with her representatives in the promotion of the general prosperity of the country; and, in the present case more especially, having regard to the antiquity of the Maharaja's family, its long connection with Mysore, and the personal loyalty and attachment to the British Government which his Highness has so conspicuously manifested, Her Majesty desires to maintain that family on the throne in the person of his Highness's adopted son, upon terms corresponding with those made in 1799, so far as the altered circumstances of the present time will allow.

"In considering the stipulations which will be necessary to give effect to this arrangement, I have, in the first place, to observe, that Her Majesty's Government cannot but feel a peculiar interest in the welfare of those who have now for so long a period been subject to their direct administration, and that they will feel it their duty, before replacing them under the rule of a native sovereign, to take all the pains they can with the education of that sovereign, and also to enter into a distinct agreement with him as to the principles upon which he shall administer the country, and to take sufficient securities for the observance of the agreement.

"It is, therefore, the intention of Her Majesty that the young prince should have the advantage of an education suitable to his rank and position, and calculated to prepare him for the duties of administration; and I have to desire you to propose to the Maharaja that he should receive his education under the superintendence of your Government. I have to request that you will communicate with me as to the mode in which this can best be effected without separating the young prince more than is necessary from those over whom he may hereafter be called on to rule."

The despatch went on to direct that if at the demise of his Highness the young prince should not have attained the age fixed for his majority, "the territory shall continue to be governed in his name upon the same principles and under the same regulations as at the present time." Before confiding to him the administration of the whole, or any portion, of the State, arrangements would be made "for the purpose of adequately

providing for the maintenance of a system of government well adapted to the wants and interests of the people," and, in regard to the rights and interests of the British Government, for some addition to the subsidy.

The Rája, though this gave the final blow to his own pretensions, was much gratified with the remainder of the decision, and with the friendly tone of the despatch. He was as alive as the British Government to the fact that defective training had been to a great extent at the bottom of his misfortunes. He accordingly selected Colonel G. Haines, formerly in the Mysore Commission, as guardian of the young prince, to superintend his education and training. Next year he died, on the 27th of March 1868, having reached the ripe age of seventy-four years. Though deprived of political power, the assignment to him of a fifth of the revenue for his personal expenditure had enabled him to give reins to the princely liberality which formed one of the main elements of his character, and he possessed many amiable personal qualities much appreciated by those with whom he was intimate. Immediately on the occurrence of this event the following proclamation was issued:—

"His Excellency the Right Honourable the Viceroy and Governor-General[1] in Council announces to the Chiefs and people of Mysore, the death of his Highness the Maharaja Krishna Rája Wodiar Bahadoor, Knight Grand Commander of the Most Exalted Order of the Star of India. This event is regarded with sorrow by the Government of India, with which the late Maharaja had preserved relations of friendship for more than half a century.

"His Highness Chamarajendra Wodiar Bahadoor, at present a minor, the adopted son of the late Maharaja, is acknowledged by the Government of India as his successor and as Maharaja of the Mysore territories.

"During the minority of his Highness the said territories will be administered in his Highness's name by the British Government, and will be governed on the same principles and under the same regulations as heretofore.

"When his Highness shall attain to the period of majority, that is, the age of eighteen years, and if his Highness shall then be found qualified for the discharge of the duties of his exalted position, the government of the country will be entrusted to him, subject to such conditions as may be determined at that time."

The young Maharaja was installed at Mysore at noon on the 23rd of September, at the time of the Dasara, by the Commissioner, Mr. Bowring, who reported that "during the whole of the fatiguing cere-

[1] Sir John (afterwards Lord) Lawrence.

monies attendant on his installation the young prince showed great self-control and composure, and it was not a little remarkable to see a child of his tender years behave with so much dignity."

Mr. Bowring, who from 1869 was styled Chief Commissioner, resigned office at the beginning of 1870. His Indian experience and well-known acquaintance with the oriental classical languages enabled him to sympathize readily with native institutions and interests. The assimilation of the system of government, therefore, to that of the British Provinces, although it had necessitated the introduction of a larger European element than before, was conjoined with the recognition of native merit and talent. Two out of the eight Districts were placed under the administration of native Deputy-Superintendents, appointments which ranked among the highest anywhere held at that period by their countrymen. Many important judicial and other offices were filled in a similar manner, and the way was left open for a more extensive employment of native agency.

Colonel (afterwards Sir Richard) Meade[1] assumed charge in February 1870, and was unexpectedly called away five years later by Lord Northbrook, to the control of the Baroda State, where he had also previously for several months (October 1873 to March 1874) been a member of the Commission for the trial of the Gaikwar. His able administration of Mysore was therefore subject to unlooked-for interruptions of a harassing nature. Among the more important measures of this period a great impetus was given to public works, in raising all works of irrigation to a complete standard of repair and efficiency, in opening out communications in the remotest and most difficult parts of the country, in surveys for railway extension, and in the erection of public buildings, and carrying out of local improvements in towns. Education continued to flourish. A topographical survey, the planting of village topes, improvements in agriculture, and other useful works were set on foot. In 1871, Sub-Divisions, composed of groups of taluqs, were constituted, and an Assistant-Superintendent was placed in charge of each, the object being to bring Government officers into closer

[1] This distinguished officer had made a name when only a Captain in connection with the surrender of the fort of Gwalior, in the Mutiny. He subsequently commanded the column which captured the rebel leader Tantia Topee. Was Political Agent at Gwalior in 1860, and for Central India, at Indore, in 1861. Arrested and deported the Gaikwar Malhar Rao in 1875, selected and installed his successor, and reorganized the administration of Baroda. When on his way back to Mysore at the end of that year, he was appointed Resident at Haidarabad, from which he retired to England in 1881, and died in the south of France in 1894. To him Bangalore owes the Cubbon Park, at first called Meade Park, the name being changed in accordance with his wishes.

communication with the people and to give the Assistant-Superintendents a greater interest in their work.

In 1873 the designation of Commissioner was substituted for Superintendent through all the grades; and in the same year, an important measure for the establishment of Munsiffs' courts, with purely civil jurisdiction, was brought into operation. The amildars were thus relieved of jurisdiction in civil cases, and the judicial powers of other officers were greatly modified. The re-organization of the police was commenced, one of the principal features of the scheme being the recognition of the village police, and its utilization after being placed on a reasonable footing of efficiency. The local military force, somewhat reduced, was greatly improved by proper selection of men and horses, and by the enforcement of a regular course of drill. Native agency was systematically introduced into every department. Special training was provided for preparing native officers for the Public Works, Survey and Forest departments, and young men of good family were appointed as Attachés, with the view of enabling them to gain experience in civil and revenue matters before being entrusted with responsible charges.

Mr. R. A. Dalyell, of the Madras Civil Service and Member of the Viceroy's Council, officiated for a year from April 1875, when Mr. C. B. Saunders, who for some years had been Resident at Haidarabad, was re-transferred to Mysore.[1] During the two years that he was Chief Commissioner occurred the great famine which swept off more than a million of the population, and for a time beclouded all the prosperity of the State.

The young Rája (to whom, on the resignation of Colonel Haines in 1869, Colonel G. B. Malleson[2] had been appointed guardian) attended, with Mr. Saunders, the Imperial Assemblage at Delhi on the 1st of January 1877, when the Queen was proclaimed Empress of India. Soon after their return gloomy prospects began rapidly to thicken.

The late rains of 1875 and the rains throughout 1876 had generally failed. The harvests of two successive years were lost, and the surplus stores of grain were consumed. Relief works had been started in several parts; remissions of assessment had been granted; the State forests were thrown open to grazing; house-to-house visitation had

[1] He had served in the Punjab in 1849, and was Political Agent and Commissioner with the army before Delhi at its final siege and capture in the Mutiny in 1857. Created C.B. in 1864. Retired to England in 1878, and died there some years after.

[2] Previously Controller-General in the Military Finance Department. Author of several standard works on Indian historical subjects. Created C.S.I. in 1872.

been instituted and other palliative measures adopted. When, therefore, spring showers fell in 1877, hope revived; but only to be quenched. The regular rains failed for the third year in succession. The surrounding Madras and Bombay districts were in the same plight. Panic and mortality now spread among the people, and famine became sore in the land. From November, the only railway, the one from Madras to Bangalore, had been pouring in 400 to 500 tons of grain a day, the latter sufficient to support 900,000 people; yet, in May, there were 100,000 starving paupers being fed in relief kitchens, and in August the numbers rose to 227,000; besides 60,000 employed on relief works, paid in grain, and 20,000 on the railway to Mysore. Sir Richard Temple had been deputed as Special Commissioner, to advise the Government, but it became evident that the utmost exertions of the local officers were unequal to cope with the growing distress. The Viceroy, Lord Lytton, then came himself. A larger European agency was seen to be absolutely necessary. A number of officers, therefore, of regiments in Upper India, as well as civilians, were induced to volunteer for famine duty. Mr. (afterwards Sir Charles) Elliott was appointed Famine Commissioner, and Major (afterwards Sir Colin) Scott-Moncrieff, chief engineer.

Relief works were now concentrated, and gratuitous relief was confined as far as possible to those whose condition was too low to expect any work from them at all. Bountiful rains in September and October caused the cloud to lift, and the pressure of famine began to abate, but mortality from attendant sickness continued and relief works were not all closed till November 1878. Private hoards of gold and silver coins, and articles of jewellery, had been generally parted with, often at ruinous rates. The Mansion House fund, subscribed for the famine by English charity, thus afforded the means of reinstating numbers of agriculturists who had been left destitute. while missionary and other bodies, aided by Government contributions, took charge of orphans, to be brought up and respectably settled.

The financial effects were indeed disastrous, especially in view of the approaching Rendition. The invested surplus of 63 lakhs had disappeared and a debt of 80 lakhs had been incurred. The revenue collections, which in the year before the famine stood at over 109 lakhs, fell in 1876–7 to 82 lakhs and in 1877–8 to 69 lakhs. A Committee was convened to report on the measures practicable for reducing expenditure to meet the deficit, and the proposed reductions were generally carried out in 1878 and 1879, involving the abolition of many appointments and the removal of European officers, with the substitution of natives on lower pay.

Mr. (afterwards Sir James) Gordon, who had been Judicial

Commissioner since 1868,[1] was made Guardian to the Maharaja at the end of 1877. This appointment had been in abeyance since vacated by Colonel Malleson in 1876. Captain F. A. Wilson[2] then acted as tutor to the Maharaja till 1878, when Mr. W. A. Porter[3] was appointed tutor. The method adopted in his education had been to teach him along with other boys of good family and suitable age, away from his residence, in a select school, where all were treated alike, and he took his place with them in lessons and games. For the benefit of change of scene and association he was taken on trips to Calcutta and Bangalore, and spent the hot weather on the hills at Ootacamund.

In April 1878 Mr. Gordon was made Chief Commissioner in addition to his office as Guardian. On him, therefore, devolved the responsibility of the final steps needed to fit both the young prince for his kingdom, and the kingdom for the prince. On the latter, who proved to be of a most tractable disposition, the good effects of his influence were soon manifest, while, as the result of favourable seasons, the country was at the same time rapidly recovering its prosperity, though crippled by the results of the famine. To the young Maharaja (whose marriage had now been celebrated with an accomplished princess of the Kalale family, educated in a similar manner), the system and principles of the administration continued to be the subject of careful instruction on the part of Mr. Gordon, and in 1880 he accompanied Mr. Gordon on a tour throughout the State as the best means of impressing the lessons on his mind, and making him acquainted with the country he was so soon to rule.

The Rendition took place on the 25th of March 1881, when, at seven o'clock in the morning, amidst universal good wishes and every demonstration of joy on the part of the people, the Maharaja Chama Rajendra Wodeyar was placed on the throne at Mysore. The ceremony was performed in an impressive manner by the Governor of Madras, the Right Honourable W. P. Adam, and during the inauguration a gentle shower of rain descended, a welcome omen, seeming to betoken a blessing from the skies on this great act of State. Mr. Gordon now became Resident, and was knighted shortly after. The terms on which the Government was entrusted to the Maharaja are contained in the Instrument of Transfer, printed at the end of this chapter.[4]

[1] From 1863 to 1868 was Private Secretary to the Governor-General, Lord Lawrence.

[2] Previously tutor to the Nawab of Jowra. On leaving Mysore he became Assistant-Resident at Haidarabad.

[3] A distinguished graduate of Cambridge, and Principal of the Kumbhakonam College.

[4] The Bombay Government wanted to take advantage of this occasion to straighten their boundary, where it touches Mysore on the north-west, by annexing the Sorab taluq and part of Shikarpur, but the Home Government refused to sanction it.

In view of the financial straits of the country, the payment of the enhanced subsidy of $10\frac{1}{2}$ lakhs was postponed for five years: the Maharaja's civil list, fixed at 13 lakhs, being also limited to 10 lakhs for the first five years. A proclamation was issued by the Maharaja on assuming the government, confirming all existing officers in their appointments, nominating as Dewan Mr. C. Rangácharlu;[1] and forming, under him as President, a Council of two or more members, "the said Council to submit for our consideration their opinions on all questions relating to legislation and taxation, and on all other measures connected with the good administration of our territories and the well-being of our subjects." The duties of the Council have been the subject of regulation from time to time, and in 1895 certain departments were placed under each member.

A popular institution formed soon after, of considerable interest and conceived in the liberal spirit of the times, was a Representative Assembly, the nature of which was thus stated in an order issued in August: "His Highness the Maharaja is desirous that the views and objects which his Government has in view in the measures adopted for the administration of the Province should be better known and appreciated by the people for whose benefit they are intended, and he is of opinion that a beginning towards the attainment of this object may be made by an annual meeting of the representative landholders and merchants from all parts of the Province, before whom the Dewan will place the results of the past year's administration and a programme of what is intended to be carried out in the coming year. Such an arrangement, by bringing the people into immediate communication with the Government, would serve to remove from their minds any misapprehensions in regard to the views and action of Government, and would convince them that the interests of the Government are identical with those of the people. This annual meeting will be conveniently held at Mysore, immediately after the close of the Dasara festival, which occasion will offer an additional inducement to those invited to attend the meeting." The Local Fund Boards (to be formed) were to select one or two cultivating landholders from each taluq, possessed of general information and influence amongst the people, and three or four leading merchants for the District generally. As attendance at the meeting was

[1] A Srivaishnava Brahman of the Conjeveram country. He was a Deputy-Collector under the Madras Government, and had been engaged as an assistant on the Inám inquiry, when brought to Mysore by Mr. Bowring in 1868, on the decease of the Maharaja, to aid in arranging his affairs and settling his debts. He was subsequently made Controller of the Palace, and in 1879 Revenue Secretary to the Chief Commissioner. Created C.I.E. in 1878.

to be entirely voluntary, the wishes and convenience of the persons invited was to be consulted.

The Assembly met for the first time on the 7th October 1881, when 144 members were present, and it has met at the Dasara season every year since. The numbers rose to 279 in 1886, and have varied from year to year. The Dewan, surrounded by the chief officers of the State, reads his Annual Statement, which is translated into Kannaḍa. The delegates then, District by District, bring forward such matters as they have resolved upon, which are either summarily disposed of, or discussed and reserved to be dealt with after inquiry and consideration. The members in the earlier period were nominated by the Dewan and the District officers, but from 1885 they were selected by the Local and Municipal Boards, by this time formed. In 1887 a property qualification was imposed; in 1890 the privilege of election was conceded to the wealthier and more enlightened classes; and in 1893 membership was made tenable for three years. The property qualification for a member is the annual payment, according to locality, of land revenue of from Rs. 100 to 300, of mohatarfa (house or shop tax) of Rs. 13 to 17, or the ownership of one or more inám villages with a beriz (total land revenue) of Rs. 500. The authorized number of members for each taluq, and for the cities of Bangalore and Mysore, are elected by those entitled to vote by reason of property or education. Local Fund Boards, Municipalities, and certain Associations depute a specified number of members from among their respective bodies. Lists are maintained of those qualified as members and as voters, Government servants being excluded from both. The maximum number of members returnable is 351, and all interests in the country are thus efficiently represented.

The first measures of the new Government were directed to reductions of expenditure. With this view two Districts (Chitaldroog and Hassan) and nine taluqs[1] were abolished, as well as the Small Cause Court and several Subordinate Judges' Courts, while the number of jails was reduced from nine to three, the Silahdar regiments from three to two, and District and taluq boundaries were generally altered. The duties of some of the higher appointments retained were before long doubled up under fewer officers, with lower designations. These changes caused a feeling of much unrest, and tended to sever continuity with the past. But the loss of the able Dewan, Mr. Rangácharlu, who died at Madras on the 20th January 1883, brought matters to a pause. In consideration of his services the grant of a

[1] Channapatna, Devanhalli, Gudibanda, Malur, Srinivaspur, Malvalli, Koratagere, Arkalgud, Kankuppa.

lakh was made to his family,[1] and Mr. (now Sir K.) Sheshádri Iyer[2] was selected to succeed him, a choice which after events have proved was guided by the good fortune that has watched over the destinies of Mysore. But Sir James Gordon, who had safely steered the State through all the recent eventful changes was now disabled by a paralytic stroke, and he retired to England, where he died some years later. His great services to Mysore are commemorated by a statue, the work of Onslow Ford, erected in front of the Public Offices at the capital.

The changes in the appointment of Resident were frequent after this, as the following list from the time of the Rendition will show[3]:—

Mr. (afterwards Sir James) Gordon	Mar. 1881 to June 1883
Mr. J. D. Sandford, acting, May 1882 to June 1883	
Mr. (afterwards Sir James) Lyall	June 1883 to Mar. 1887
Col. T. G. Clarke, acting, Dec. 1884 to May 1885	
Mr. C. E. R. Girdlestone, acting, June 1885 to May 1886	
Sir Charles Bernard (did not join)	
Mr. (afterwards Sir Dennis) Fitzpatrick	Mar. 1887 to Oct. 1887
General Sir Harry Prendergast, V.C.	Oct. 1887 to Jan. 1889
Colonel Sir Oliver St. John	Jan. 1889 to June 1891
General Sir Harry Prendergast	June 1891 to April 1892
Colonel P. D. Henderson	April 1892 to Feb. 1895
Colonel H. P. Peacock, acting, July to Oct. 1892	
Mr. W. Lee-Warner	Feb. 1895 to Sept. 1895
Mr. (now Sir) W. Mackworth Young	Sept. 1895 to Dec. 1896
Colonel Donald Robertson	Dec. 1896

When it was known that Sir James Gordon would not return to his appointment, in which Mr. Sandford, the Judicial Commissioner, had meanwhile been acting, Mr. Lyall, Settlement Commissioner in the Punjab, was made Resident. During most of his absence on leave, Mr. Girdlestone, Resident in Nepal, was transferred to Mysore. Mr.

[1] The Rangácharlu Memorial Hall at Mysore was erected, partly by subscriptions, as a monument to him.

[2] A Smárta Brahman of the Palghat country, graduated in Arts and Law. He entered the Mysore service in 1868 as Judicial Sheristadar, and from 1879 was Deputy Commissioner. Had also acted as Controller of the Palace, Sessions Judge, and in other capacities. Created C.S.I. in 1887, and K.C.S.I. in 1893. In a laudatory notice which appeared at this latter time of his management of Mysore affairs, Sir W. W. Hunter described him as a statesman who had given his head to Herbert Spencer and his heart to Para Brahma.

[3] The changes of Assistant-Residents, as below, have been even more frequent :—

Mr. W. J. Cuningham	from	Mar. 1881
Major H. Wylie ...	,,	Nov. 1882
Mr. A. H. T. Martindale	,,	Feb. 1885
Major J. H. Newill ...	,,	Oct. 1885
Major E. A. Fraser ...	,,	Apl. 1886
Major D. Robertson	,,	Dec. 1886
Mr. L. W. King ...	,,	July 1887
Major D. Robertson...	,,	Dec. 1887
Mr. F. E. K. Wedderburn	,,	May 1888
Mr. E. G. Colvin ...	from	Dec. 1888
Mr. J. A. Crawford ...	,,	Apl. 1889
Captain L. S. Newmarch	,,	Oct. 1889
Major C. W. Ravenshaw	,,	Apl. 1891
Mr. H. V. Cobb ...	,,	Aug. 1893
Major C. W. Ravenshaw	,,	Nov. 1893
Mr. H. V. Cobb ...	,,	Apl. 1895
Captain K. D. Erskine	,,	June 1895

Lyall was eventually appointed Lieutenant-Governor of the Punjab, and Sir Charles Bernard, Chief Commissioner of Burma, was nominated, but being almost immediately transferred to the India Office, did not join, and Mr. Fitzpatrick, Legislative Secretary to the Government of India, received the appointment. On the transfer of the latter to Assam,[1] Sir Harry Prendergast became Resident, and when he left for Baroda, Sir Oliver St. John[2] succeeded. Sir Oliver was afterwards sent to Beluchistan, and died a few days after arrival at Quetta. Sir Harry Prendergast[3] then again held office till the appointment of Colonel Henderson, Superintendent for the Suppression of Thuggee and Dacoity. During the latter's absence on leave, Colonel Peacock acted, and on leaving Mysore became Consul-General at Baghdad. Colonel Henderson retired in 1895, and Mr. Lee-Warner, Political Secretary to the Bombay Government, succeeded.[4] But in a few months he was transferred to the India Office, and Mr. Mackworth Young, Financial Commissioner in the Punjab, was appointed. At the end of 1896 he in his turn was made Lieutenant-Governor of the Punjab, and Colonel Donald Robertson, Resident at Gwalior, took his place in Mysore. The office has thus been filled by distinguished men of every variety of service and experience.

In the policy continued under the new Dewan measures to provide against a recurrence of famine had still the foremost place. Railways and irrigation works were recognized as the most potent agents to this end. The latter, however, are subject to the drawback that, being largely dependent on the rains, they are liable to fail in a time of drought when most needed. Railway construction was therefore pushed on, and by the end of 1884 there had been completed 140 miles of State railway (Bangalore to Mysore, and Bangalore to Gubbi), from current revenues and a local loan of twenty lakhs. This line was then hypothecated to the Southern Mahratta Railway Company on terms which allowed of its being extended to Harihar from capital borrowed in England, and this portion was opened for traffic in 1889. A line from Bangalore to Hindupur was afterwards completed in 1893 from State funds. The tracts that suffered most from the famine were thus effectually provided for, and the Mysore railways were linked with those of the Bombay and Madras districts beyond. The fear of famine was not unwarranted, for in 1884 and again in 1891 great anxiety

1 Subsequently Resident at Haidarabad and Lieutenant-Governor of the Punjab.

2 Had served in Persia and Abyssinia, as Principal of the Mayo Chiefs' College at Ajmere, and as Political Agent at Kandahar.

3 After a distinguished military career, ending with his capture of Upper Burma, on which he was made K.C.B., was successively resident at Travancore, Baroda, Beluchistan and Mysore.

4 Colonel Henderson was created C.S.I. in 1876, and Mr. Lee-Warner in 1892.

arose from failure of the rains, especially in the north, and relief works had actually been devised when rain fell and the prospect changed. A short line from Mysore to Nanjangud, admitting of the transport of timber floated to that point from the southern forests, opened in December 1891, and one for the Gold-fields in 1893 were constructed in the same manner, and a line from Birur to Shimoga decided on. The fifty-eight miles of railway open at the time of the Rendition thus increased to 315 by 1895, and surveys had been made of lines from Nanjangud to Gudalur, Nanjangud to Erode, and Arsikere *viâ* Hassan to Mangalore. The latter may now be carried out.

Irrigation works had all along been receiving particular attention, and all available funds were devoted to the carrying out of large projects in tracts where they were most required. To 1895 the expenditure under this head amounted to 100 lakhs, making an addition of 355 square miles to the area under wet cultivation, and bringing in an additional revenue of eight and a quarter lakhs. With this addition 1,558 square miles are protected by irrigation. Another very important measure was the granting of loans for digging irrigation wells, of which 1,078 had been completed, benefiting 7,000 acres, against loans aggregating four lakhs.

The reductions in establishments previously referred to were completed in 1884, and a Chief Court of three judges was formed, the Chief Judge being a European. Next year Inspectors-General were also appointed for Police and for Forests. The revenue in the first three years after the Rendition was generally stationary, but in the fourth year it declined, owing to the drought. The payment of the enhanced subsidy was therefore again postponed by the British Government for ten years more, while the revenue administration of the Assigned Tract, forming the Civil and Military Station of Bangalore, was transferred entirely to the British Government, which retains the surplus. The former measure relieved financial pressure, and allowed of the Districts and Taluqs abolished in 1881 being again formed. During the next ten years the revenue continually rose until in 1894–5 it reached $180\frac{1}{2}$ lakhs. Expenditure on a large and liberal scale had also meanwhile continued on all works and purposes of public utility. The famine debt was extinguished in 1888, and a commencement was made towards paying off the railway loan. In short, in place of the net liability against the State of $30\frac{3}{4}$ lakhs in 1881 there were in 1895 net assets of over 176 lakhs in its favour. This result was not due to new taxation in any form or shape. Next to good seasons, it was the effect of natural growth, under the stimulus afforded by the opening out of the country by means of new roads and railways, the execution of important irrigation works and the general expansion of industries; also in some measure of an improved management of particular sources of income.

A Department of Agriculture and Statistics was formed in 1886, and an Agricultural Exhibition held in 1888. The Revenue Laws were codified, the time for paying assessments was postponed till after the produce could be realized, and agricultural banks were started in 1894. But the importance of promoting industrial enterprise in a country so largely dependent on agriculture was clearly seen. Coffee-planting had been much assisted by the substitution in 1881 of an acreage assessment on the land in place of the old *hálat* or duty levied on the produce, and the area under coffee has since increased by twenty-eight square miles. But the most remarkable industrial development has been that of gold-mining. The first indication of profit from this source was in 1886, and in that year a preliminary examination of auriferous tracts in the State was carried out. The liberal terms granted to encourage gold-mining on a large scale by European Companies had a good effect, but the principal returns obtained so far have been in the Kolar gold-fields. What was a desolate waste has thus become a great industrial town, employing nearly 10,000 labourers. The 16,325 ounces of gold extracted in 1886–7, valued at about 9 lakhs, rose every year, until in 1894–5 the quantity reached 234,859 ounces, valued at £844,271, or about 150 lakhs. The royalty, with premia and deposits on leases, paid annually to the Mysore Government, increased in the same period from half a lakh to more than 7¼ lakhs. Cotton and woollen mills were brought into operation at various times, and the silk industry revived. In 1889 liberal concessions were granted with the view of promoting the establishment of iron works on a large scale in Malavalli, and as an aid a railway from Maddur to Sivasamudram was proposed. But as yet this scheme has not been carried out. In 1894 a Geological Department was formed to scientifically explore the mineral resources of the State.

The Medical Department was early reorganized, and medical relief extended to all parts by the appointment of local surgeons, the establishment of taluq dispensaries, and the appointment of trained midwives. Sanitation and water supply in the principal towns received particular attention, and extensive works were carried out in the cities of Mysore and Bangalore, both of which had large additions made to their area. The prospects of the Educational Department were much improved, and vernacular and primary instruction greatly extended. The higher staff was strengthened and female education made marked progress. Charges which in the time of reductions had been thrown on local funds were in 1889 again met from provincial funds: a more liberal expenditure followed, and the numbers under instruction rose accordingly. Archæology, which had already received attention,

was specially provided for, to allow of the numerous and valuable inscriptions throughout the country being copied and published. A much-needed Muzrai Department, to control the funds and management of temples, was formed. Also an Excise Department, to regulate the manufacture and sale of spirituous liquors. A corps of Imperial Service Lancers was enrolled, to aid in imperial defence. An Observatory, well equipped with meteorological instruments, has been recently established at Bangalore.

An important measure was the transfer in 1889 of the Anche or ancient postal service of Mysore to the British Imperial post-office. This amalgamation, though at first opposed as being an abrogation of one of the Maharaja's privileges, has proved of great convenience to the public and economical to the country. A scheme of State Life Assurance was introduced about the same time, for the benefit principally of the subordinate classes of officials, to enable them to make provision for their families. And in order to secure well-qualified men for the higher administrative posts, a Civil Service scheme was adopted in 1891, providing a competitive examination of an advanced standard to be passed by accepted candidates, while a fixed scale of salaries was laid down. More recently an interdict on early marriages was passed.

The foregoing review, though not exhaustive, will sufficiently serve as evidence of the liberal and enlightened system of administration pursued under the Native Government established in 1881. Since then Mysore has received more than one visit from the Viceroy of the day. In 1886 the Earl of Dufferin was here, and the following extract from one of his speeches indicates the impression made upon his mind by what he saw:—"Under the benevolent rule of the Maharaja and of his dynasty, good government, enlightened progress, universal peace and the blessings of education are everywhere ascendant, and there is no State within the confines of the Indian Empire which has more fully justified the wise policy of the British Government in supplementing its own direct administration of its vast territories by the associated rule of our great feudatory Princes." The lamented Prince Albert Victor had visited Mysore in 1889 and derived great pleasure from the elephant keddahs. The Marquess of Lansdowne followed in 1892, and among other expressions of approval said:—"There is probably no State in India where the ruler and the ruled are on more satisfactory terms, or in which the great principle, that government should be for the happiness of the governed, receives a greater measure of practical recognition."

But Mysore, thus flourishing and placed in the front rank of the States of India, was doomed to suffer a bitter loss at the end of 1894. His Highness the Maharaja had gone on a tour as usual in the cold

weather to the north, accompanied by all his family. On his arrival at Calcutta at the end of December, a slight throat affection, which he had been feeling for a few days before, developed into diphtheria, and so rapid was the progress of the disease that in spite of the best medical skill he suddenly expired on the 28th. The people of Mysore were simply stunned by the shock which this sad news created, so utterly unexpected. The entire press of India, with all the leading journals in England and other countries, were unanimous in lamenting that a career so promising had been thus cut short, for the Maharaja's virtues and the interest of his country had become known far and wide.

Dignified and unassuming, his bearing was that of the English gentleman. An accomplished horseman and whip, fond of sport, a liberal patron of the turf, and hospitable as a host, while at the same time careful in observance of Hindu customs, he was popular with both Europeans and natives. His palace was purged of all former evil associations, and the Court of the Queen in England was not purer in tone than that of Mysore under the late Maharaja. He was devoted to his family, and of a cultured and refined taste which led him to take special pleasure in European music and in works of art. He was also diligent and conscientious in attending to business. The rainy season was spent partly at Mysore and partly at Bangalore; in the cold weather a tour was undertaken to some other part of India, and the hot weather was passed on the hills at Ootacamund. He had thus travelled much and been brought into intercourse with most of the leading men in India, who were impressed with his high character.

The installation of his eldest son, Mahárája Krishna Rája Wodeyar, then ten years old, was performed at Mysore, by the Resident, Colonel Henderson, with all the customary ceremonies, on the 1st of February 1895, at noon, at the moment of the conjunction of Mercury and Venus, which had been conspicuous objects in the evening sky for some days before. Her Highness the Mahárání was at the same time proclaimed Regent. The education of the Maharaja, while a minor, is being conducted in a manner suited to his rank and prospects.[1] His intelligence and disposition augur well for his future. The present Viceroy, the Earl of Elgin, visited Mysore at the end of 1895, and his advice to the Maharaja, in view of the cares thus early in life thrust upon him, was not to hasten to be old too soon.

Here this history, so eventful and full of incident, now ends. Mysore has played no inconspicuous part in the past, and a great future

[1] Mr. J. J. Whiteley, of Cooper's Hill Engineering College, was appointed as tutor some time before the father's death. Mr. S. M. Fraser, of the Bombay Civil Service, has since been appointed.

doubtless yet lies before it. In the century now closing it has been an example of the complete failure of purely native administration, conducted without reference to European advice, and of the conspicuous success of administration on Western lines by Europeans and natives combined. As history tends to repeat itself, these lessons should be pondered.

Instrument of Transfer.[1]

WHEREAS the British Government has now been for a long period in possession of the territories of Mysore and has introduced into the said territories an improved system of administration : And whereas, on the death of the late Maharaja, the said Government, being desirous that the said territories should be administered by an Indian dynasty, under such restrictions and conditions as might be necessary for ensuring the maintenance of the system of administration so introduced, declared that if Maharaja Chamrajendra Wadiar Bahadur, the adopted son of the late Maharaja, should, on attaining the age of eighteen years, be found qualified for the position of ruler of the said territories, the government thereof should be entrusted to him, subject to such conditions and restrictions as might be thereafter determined : And whereas the said Maharaja Chamrajendra Wadiar Bahadur has now attained the said age of eighteen years, and appears to the British Government qualified for the position aforesaid, and is about to be entrusted with the government of the said territories : And whereas it is expedient to grant to the said Maharaja Chamrajendra Wadiar Bahadur a written instrument defining the conditions subject to which he will be so entrusted. It is hereby declared as follows :—

1. The Maharaja Chamrajendra Wadiar Bahadur shall, on the 25th day of March 1881, be placed in possession of the territories of Mysore, and installed in the administration thereof.

2. The said Maharaja Chamrajendra Wadiar Bahadur and those who succeed him in manner hereinafter provided, shall be entitled to hold possession of, and administer the said territories as long as he and they fulfil the conditions hereinafter prescribed.

3. The succession to the administration of the said territories shall devolve upon the lineal descendants of the said Maharaja Chamrajendra Wadiar Bahadur, whether by blood or adoption, according to the rules and usages of his family, except in the case of disqualification through manifest unfitness to rule.

Provided that no succession shall be valid until it has been recognized by the Governor-General in Council.

In the event of a failure of lineal descendants, by blood and adoption, of the said Maharaja Chamrajendra Wadiar Bahadur, it shall be within the discretion of the Governor-General in Council to select as a successor any member of any collateral branch of the family whom he thinks fit.

4. The Maharaja Chamrajendra Wadiar Bahadur and his successors

[1] See above, p. 441.

(hereinafter called the Maharaja of Mysore) shall at all times remain faithful in allegiance and subordination to Her Majesty the Queen of Great Britain and Ireland and Empress of India, Her heirs and successors, and perform all the duties which, in virtue of such allegiance and subordination, may be demanded of them.

5. The British Government having undertaken to defend and protect the said territories against all external enemies, and to relieve the Maharaja of Mysore of the obligation to keep troops ready to serve with the British army when required, there shall, in consideration of such undertaking, be paid from the revenues of the said territories to the British Government an annual sum of Government rupees thirty-five lakhs in two half-yearly instalments, commencing from the said 25th day of March 1881.

6. From the date of the Maharaja's taking possession of the territories of Mysore, the British sovereignty in the island of Seringapatam shall cease and determine, and the said island shall become part of the said territories, and be held by the Maharaja upon the same condition as those subject to which he holds the rest of the said territories.

7. The Maharaja of Mysore shall not, without the previous sanction of the Governor-General in Council, build any new fortresses or strongholds, or repair the defences of any existing fortresses or strongholds in the said territories.

8. The Maharaja of Mysore shall not, without the permission of the Governor-General in Council, import, or permit to be imported, into the said territories, arms, ammunition, or military stores, and shall prohibit the manufacture of arms, ammunition, and military stores, throughout the said territories, or at any specified place therein, whenever required by the Governor-General in Council to do so.

9. The Maharaja of Mysore shall not object to the maintenance or establishment of British cantonments in the said territories, whenever and wherever the Governor-General in Council may consider such cantonments necessary. He shall grant free of all charge such land as may be required for such cantonments, and shall renounce all jurisdiction within the lands so granted. He shall carry out in the lands adjoining British cantonments in the said territories such sanitary measures as the Governor-General in Council may declare to be necessary. He shall give every facility for the provision of supplies and articles required for the troops in such cantonments; and on goods imported or purchased for that purpose no duties or taxes of any kind shall be levied without the assent of the British Government.

10. The Military force employed in the Mysore State for the maintenance of internal order and the Maharaja's personal dignity, and for any other purposes approved by the Governor-General in Council, shall not exceed the strength which the Governor-General in Council may, from time to time, fix. The directions of the Governor-General in Council in respect to the enlistment, organization, equipment and drill of troops shall at all times be complied with.

11. The Maharaja of Mysore shall abstain from interference in the

affairs of any other State or power, and shall have no communication or correspondence with any other State or power, or the agents or officers of any other State or power, except with the previous sanction, and through the medium of the Governor-General in Council.

12. The Maharaja of Mysore shall not employ in his service any person not a native of India without a previous sanction of the Governor-General in Council, and shall, on being so required by the Governor-General in Council, dismiss from his service any person so employed.

13. The coins of the Government of India shall be legal tender in the said territories in the cases in which payment made in such coins would, under the law for the time being in force, be a legal tender in British India; and all laws and rules for the time being applicable to coins current in British India shall apply to coins current in the said territories. The separate coinage of the Mysore State, which has long been discontinued, shall not be revived.

14. The Maharaja of Mysore shall grant free of all charge such land as may be required for the construction and working of lines of telegraph in the said territories wherever the Governor-General in Council may require such land, and shall do his utmost to facilitate the construction and working of such lines. All lines of telegraph in the said territories, whether constructed and maintained at the expense of the British Government, or out of the revenues of the said territories, shall form part of the British telegraph system, and shall, save in cases to be specially excepted by agreement between the British Government and the Maharaja of Mysore, be worked by the British Telegraph Department; and all laws and rules for the time being in force in British India in respect to telegraphs shall apply to such lines of telegraph when so worked.

15. If the British Government at any time desires to construct or work, by itself or otherwise, a railway in the said territories, the Maharaja of Mysore shall grant free of all charge such land as may be required for that purpose, and shall transfer to the Governor-General in Council plenary jurisdiction within such land; and no duty or tax whatever shall be levied on through traffic carried by such railway which may not break bulk in the said territories.

16. The Maharaja of Mysore shall cause to be arrested and surrendered to the proper officers of the British Government any person within the said territories accused of having committed an offence in British India, for whose arrest and surrender a demand may be made by the British Resident in Mysore, or some other officer authorized by him in this behalf; and he shall afford every assistance for the trial of such persons by causing the attendance of witnesses required, and by such other means as may be necessary.

17. Plenary criminal jurisdiction over European British subjects in the said territories, shall continue to be vested in the Governor-General in Council, and the Maharaja of Mysore shall exercise only such jurisdiction in respect to European British subjects as may from time to time be delegated to him by the Governor-General in Council.

18. The Maharaja of Mysore shall comply with the wishes of the Governor-General in Council in the matter of prohibiting or limiting the manufacture of salt and opium, and the cultivation of poppy, in Mysore; also in the matter of giving effect to all such regulations as may be considered proper in respect to the export and import of salt, opium, and poppy heads.

19. All laws in force and rules having the force of law in the said territories when the Maharaja Chamrajendra Wadiar Bahadur is placed in possession thereof, as shown in the Schedule hereto annexed, shall be maintained and efficiently administered, and, except with the previous consent of the Governor-General in Council, the Maharaja of Mysore shall not repeal or modify such laws, or pass any laws or rules inconsistent therewith.

20. No material change in the system of administration, as established when the Maharaja Chamrajendra Wadiar Bahadur is placed in possession of the territories, shall be made without the consent of the Governor-General in Council.

21. All title-deeds granted, and all settlements of land revenue made during the administration of the said territories by the British Government, and in force on the said 25th day of March 1881, shall be maintained in accordance with the respective terms thereof, except in so far as they may be rescinded or modified either by a competent Court of law, or with the consent of the Governor-General in Council.

22. The Maharaja of Mysore shall at all times conform to such advice as the Governor-General in Council may offer him with a view to the management of his finances, the settlement and collection of his revenues, the imposition of taxes, the administration of justice, the extension of commerce, the encouragement of trade, agriculture and industry, and any other objects connected with the advancement of His Highness' interests, the happiness of his subjects, and his relations to the British Government.

23. In the event of breach or non-observance by the Maharaja of Mysore of any of the foregoing conditions, the Governor-General in Council may resume possession of the said territories and assume the direct administration thereof, or make such other arrangements as he may think necessary to provide adequately for the good government of the people of Mysore, or for the security of British rights and interests within the province.

24. This document shall supersede all other documents by which the position of the British Government with reference to the said territories has been formally recorded. And if any question arise as to whether any of the above conditions has been faithfully performed, or as to whether any person is entitled to succeed, or is fit to succeed, to the administration of the said territories, the decision thereon of the Governor-General in Council shall be final.

(Signed) RIPON,
Viceroy and Governor-General.

FORT WILLIAM, 1*st March* 1881.

RELIGION

The earliest religious worship probably sprang from a desire to propitiate powers from whom injury to one's person or property might be feared. In what manner this feeling came to find expression in the worship of the serpent is not easy to say. But from the time when that "most subtle of the beasts of the field" beguiled Eve, the mother of mankind, down to the present day, it has never failed to be the object of sacred rites. Mr. Fergusson has shown how extensively this worship has prevailed in every country on the face of the globe.

In India, this land of many gods, serpent worship, specially that of the deadly hooded cobra, is of great antiquity and survives to this day. There is scarcely a village in Mysore which has not effigies of the serpent, carved on stone, erected on a raised platform near the entrance for the adoration of the public.[1] The living serpent is in many parts systematically worshipped, and few natives will consent to kill one.[2] The body of one that has been killed is often solemnly disposed of by cremation, while a cobra which takes up its abode, as they sometimes do, in the thatch or roof of the house, is generally not only left undisturbed, but fed with milk, etc.

The Nágas who so frequently occur in ancient Hindu history were no doubt a widespread race of serpent worshippers, and there is every reason to believe that they occupied most parts of Mysore. The traditions that indicate this have been mentioned in the historical portions of this work. Jinadatta, the founder of Humcha, married a Nága *kanyá*; and the great serpent sacrifice by Janamejaya is said to have taken place at Hiremagalur. An inscription at Balagami,[3] of the eleventh century, bears at its head the half-human, half-serpent forms of a Nága and Nágini. The worship of the living serpent is not, I believe,

[1] The orthodox arrangement consists of three slabs, set up side by side. The first bears the figure of a male cobra, with one or more heads of an odd number up to seven; the middle slab exhibits the female serpent, the upper half of human form, generally crowned with a tiara, and sometimes holding a young serpent under each arm; the third slab has two serpents intertwined in congress, after the manner of the Æsculapian rod or the *caduceus* of Mercury, with sometimes a linga engraved between them.

[2] Some believe that the person who does so will be visited with leprosy.

[3] *Mys. Ins.*, S. S. 92.

uncommon in any part of the country: I have myself been witness to it at many places in different directions. A *hutta* or deserted ant-hill, popularly regarded as the shrine of the god, is very often in reality the residence of a snake. From a similar sentiment arose the ancient custom of taking sanctuary by embracing an ant-hill, a refuge as inviolable as the horns of the altar among the Jews.

With the worship of the serpent seems to be intimately associated that of trees, which again carries us back to the story of Eden and the mysterious tree of forbidden fruit. The stones bearing the sculptured figures of serpents near every village are always erected under certain trees, which are most frequently built round with a raised platform, on which the stones are set up, facing the rising sun. One is invariably a sacred fig, which represents a female, and another a margosa, which represents a male; and these two are married with the same ceremonies as human beings. The bilpatre (*ægle marmelos*), sacred to Siva, is often planted with them.

Whether the planting of topes—a term which in Northern India signifies a Buddhist *stúpa*, but here is applied to a grove of trees—had a religious origin or any connection with Buddhism is uncertain. It does not now seem to have a special relation to religion except as a work of charity. But particular trees and plants are held sacred to certain objects or deities, or are themselves regarded in that light. The *asvattha* or pipal, the sacred fig, is a common object of reverence as a sort of wishing tree. One on the bank of the N. Pennar near Goribidnur, called the Vidur asvattha, is said to have been planted by Vidura, the uncle of the Pandavas, and is visited by all the country round. It is built round with various shrines for protection and is believed never to die. At Hunsur may be seen a large *neem* tree which is an object of worship. The lower part is enclosed in a shrine and the branches are hung with iron chains. Out of the Jain temple of Padmávati at Humcha is growing a sacred tree called *lakke giḍa*, said to be the same that Jinadatta tied his horse to as described in the account of that place. The *bilpatre* or bael tree, as above stated, is sacred to Siva, while the *tulasi* or holy basil (*ocymum sanctum*) is sacred to Vishnu and is grown on an altar in the courtyard of Vaishnava houses. The yekke (*aristolochia indica*) and the plantain are the subject of some curious rites.[1] Connected apparently with tree worship is the regard paid to the *kakke* or Indian laburnum, which furnishes the central stake of the threshing floor, decorated at top with a little bunch of field flowers.

The general object of the worship of trees and of serpents appears

[1] See *Ind. Ant.*, IV, 5.

to be for the purpose of obtaining offspring. A woman is nearly always the priest, and women are the chief worshippers.

Máriamma or *Máramma*, familiarly styled *Amma*, the mother, or in the honorific plural *Ammanavaru*,[1] is the universal object of rural worship, as the *gráma dévatá*, or village goddess. She seems to correspond in some of her attributes with Durga or Káli, also called Chámundi, and is explained to be one of the furies attendant on that goddess. Though bearing so tender an appellation as mother, she is feared and propitiated as the source of calamity rather than loved as the bestower of blessings.[2] She is supposed to inflict small-pox—which indeed is called after her, *amma*, as chicken-pox and measles are called *chik-amma*—and to send cholera and other epidemics upon those who have incurred her wrath. She is appeased only by the shedding of blood and therefore receives animal sacrifices. In former times there is no doubt that human victims were offered up at her shrine. She appears also to be the author of cattle disease. To avert this and other evils the sacrifice is annually made in many parts of a buffalo.[3] I find the following description of the ceremony by Mr. Elliot as performed in Manjarabad :—

A three or four year old (male) buffalo is brought before the temple of Mára, after which its hoofs are washed and unboiled rice thrown over its head, the whole village repeating the words *Mára kona*, or in other words buffalo devoted to Mára. It is then let loose and allowed to roam about for a year, during which time it is at liberty to eat of any crops without fear of molestation, as an idea prevails that to interfere with the buffalo in any way would be sure to bring down the wrath of Mára. At the end of that time it is killed at the feast held annually in honour, or rather to divert the wrath, of Mára.[4]

Almost every village has its Mári gudi, though she sometimes bears various local names compounded with *amma*.

At the foundation of a village it is the practice to erect at some point of the ground two or three large slabs of stone, which are called *kari kallu* or *karu kallu*. These are also objects of worship, and are generally painted in broad vertical stripes of red and white. An annual ceremony is held in connection with them, when all the cattle of the

[1] This is evidently the Amnór of the Todas mentioned in Colonel Marshall's book, but by him misunderstood as the name of a place, answering to heaven.

[2] Buddhists believe in a kind of devil or demon of love, anger, evil and death, called Mára, who opposed Buddha and the spread of his religion —Monier Williams, *Ind. Wis.*, 58 ; cf. Wilson, *Works*, II, 340.

[3] For a similar Toda custom see *Phren. am. Todas*, 81.

[4] *Exper. of Pl.*, I, 66. Reference is also there made to *Jour. Ethnol. Soc.* of July 1869, for further particulars by Sir Walter Elliot.

village are presented before the stone. This is supposed to avert cattle disease. For the same purpose a sylvan god named *Káṭama Ráya* is worshipped under the form of an acute conical mound of mud, erected on a circular base, also of mud. At a little distance it looks not unlike a large ant-hill.[1] This rude symbol may often be seen in a field in the open, with a bunch of wild flowers adorning the apex.

Another deity, or class of deities, is known by the name of *bhúta*, a word which is taken to mean demon, but may relate to *bhú táyi*, Mother Earth, or the occult powers of Nature.[2] It is generally worshipped under the form of a few naturally rounded stones, placed together either under a tree or in a small temple and smeared with oil and turmeric. To avert calamity to crops from the bhúta, a rude figure of a man is sometimes drawn with charcoal on the ground at the angles of the field, and a small earthen vessel containing boiled rice and a few flowers broken over it. An offering is also made in some parts by a man walking round the skirts of the field, at every few steps casting grains of seed into the air, shouting out at the same time *ho bali*!

The various objects of superstitious awe described above may perhaps be classified as spirits of the air and spirits of the ground. The former include disembodied ghosts, those of the dead for whom the prescribed ceremonies have not been performed. The spirits of the air seem inclined to lodge in trees and burial-places, and by them human beings are sometimes possessed or bewitched. Charms, consisting of a bit of metal engraved with a numerical puzzle in squares, are suspended round the necks of children to protect them against this danger, as well as against "the evil eye," and similar charms are inscribed on stones called *yantra kallu*, often erected at the entrance of villages. The spirits of the ground guard hidden treasure, breach tank bunds, undermine houses, stop the growth of the crops, and perform a variety of other malignant operations. All have to be propitiated according to their supposed influence and disposition.

The above are doubtless all relics of aboriginal or primitive beliefs and rites, and may be included under the name of *Animism*, which is thus explained by Dr. Tiele :—

[1] It bears a striking resemblance, in external form at least, to the Toda conical temple called by Colonel Marshall the *boath*, though on a greatly reduced scale, much too small for an interior chamber.—*Phren. am. Tod.*, ch. XIX. See the closing remarks regarding the *bothan* or bee-hive houses in Scotland, &c.

[2] The *pancha bhúta* are the five elements—earth, air, fire, water, and ether.

[3] *Bali*—presentation of food to all created beings ; it consists in throwing a small parcel of the offering into the open air.—Benfey, *Sans. Dict.*, s. v.

Animism is the belief in the existence of souls or spirits, of which only the powerful—those on which man feels himself dependent, and before which he stands in awe—acquire the rank of divine beings, and become objects of worship. These spirits are conceived as moving freely through earth and air, and, either of their own accord, or because conjured by some spell, and thus under compulsion, appearing to men (*Spiritism*). But they may also take up their abode, either permanently or temporarily, in some object, whether lifeless or living it matters not: and this object, as endowed with higher power, is then worshipped or employed to protect individuals or communities (*Fetishism*).

The more regularly organized systems of Hindu faith may be described as four in number, associated with the worship respectively of Jina, Buddha, Siva and Vishnu. Though they existed contemporaneously in various parts, as is the case at the present day, each of these religions had its period of ascendancy, but not to the exclusion of the others.[1]

Brahmanism.—Preceding them all was the ancient Indo-Aryan Brahmanism, based upon the Vedas. The generally received opinion which assigned these works to about 1500 to 1200 B.C., has lately been disturbed by calculations based on astronomical data, which would throw back their date to from 4500 to 2500 B.C.[2] But these conclusions, though arrived at independently by different scholars, are not undisputed.[3] On the other hand, that Jainism was older than Buddhism has been definitely established. Its founder, it seems probable, was Párs'vanátha, which would take us back to the eighth century B.C., but its more recent chief apostle, Varddhamána or Mahávíra, was a little earlier than Buddha. Buddhism, as is well known, dates from the fifth century B.C., and was at the height of its power in the third century B.C. If it be the case that the s'rutakevali Bhadrabáhu came to Mysore, accompanied as his chief disciple by the abdicated emperor Chandra Gupta, and that they died at S'ravana Belgola, the introduction of Jainism into this State cannot be placed later than early in the third century B.C. But two generations after, we have the testimony of the edicts of As'oka discovered by me, that Buddhism was established in the north of Mysore. Dr. Bühler

[1] We shall perhaps find that the past did not differ so much from the present as might at first appear; that India has always had, alongside of the Veda, something equivalent to its great Sivaite and Vishnuite religions, which we see in the ascendant at a later date, and that these anyhow existed contemporaneously with it for a very much longer period than has till now been generally supposed.—Barth, *Religions of India*, Pref., xv.

[2] Tilak's *Orion*: Jacobi's *Date of the Rig Veda* (*Ind. Ant.*, XXIII, 154). *Cf.* the valuable *Note* by Dr. Bühler, *loc. cit.*, 238.

[3] *See* Dr. Thibaut, *Ind. Ant.*, XXIV, 85.

also considers[1] that the two geographical names which these edicts contain are Aryan, and point to the conclusion that the country was by that time thoroughly under Aryan influence. The record of the despatch by A'soka of missions to Banavasi and Mahis'a-mandala (the Mysore District) to propagate the faith, indicates that the north-west and south were not then Buddhist. They may, therefore, have been to some extent, if not entirely, Jain. Jainism was in the main the State religion of Mysore throughout the first thousand years of the Christian era, and ceased not to be influential till after the conversion in the twelfth century of the Hoysala king since known as Vishnuvardhana, and the murder some time later of the Kalachurya king Bijjala by the Lingáyits.

The actual introduction of Brahmans into Mysore is assigned to the third century A.D. According to tradition, the Kadamba king Mukanna or Trinetra at that time settled them at Sthánagundúr (Tálgunda in the Shikarpur taluq). This was in the west. In the east the Pallava king Mukunti is said to have introduced Brahmans at about the same period. In the south the Ganga king Vishnugopa, belonging to the same century, is said to have become devoted to the worship of Brahmans, and to have thus lost the Jain tokens which were heirlooms of his house. But the evidence of inscriptions is in favour of an earlier existence of Brahmanism in this country. The Malavalli inscriptions of the second century, discovered by me, show the king Sátakarni making a grant to a Brahman for a S'iva temple, followed by a Kadamba king also making a grant to a Brahman for the same. Moreover, the remarkable Tálgunda inscription discovered by me, represents the Kadambas themselves as very devout Brahmans, and one of them, perhaps the founder of the royal line, as going with his Brahman guru to the Pallava capital (Kánchi) to study there. It also states that Sátakarni, probably the one above mentioned, was among the famous kings who had worshipped at the S'iva temple to which it belongs. We must therefore suppose that Brahmanism, more particularly the worship of S'iva in the form of the Linga, existed in Mysore in the first centuries of our era, concurrently with other forms of faith, Buddhism or Jainism, but that the latter were in the ascendant. Hence the traditions perhaps indicate the time when Brahmanism received general public recognition by the State.

But the chief revival of Brahmanical religion took place in the eighth century, when the labours of Kumárila and of S'ankarácharya, the first apostle of S'ringéri (Kadar District), dealt a deathblow to Buddhism

[1] *Op. cit.*, XXIII, 246.

and raised the Saiva faith to the first place. In like manner, in the twelfth century, the Vaishnava religion gained ground, and through the teaching of the reformer Rámánujáchárya, put an end to the influence of Jainism. Vishnu worship thus became a national religion, but divided the empire with the followers of Siva, a compromise of which the form Harihara was symbolical, uniting in one person both Hari or Vishnu and Hara or Siva. For the reformation of the Saiva religion, which was effected about the same time by Basava, ending in the establishment of the Lingáyit sect, imparted to it a vitality which it has never since lost in the south, especially amongst the Kannada-speaking races. Forty years later a somewhat similar reformation of the Vaishnava religion was brought about through the teaching of Madhváchárya, and before another century further innovations were introduced by Rámánand, and afterwards by Chaitanya and others.

Jainism.—Though so ancient, the existence of the sect of the Jains was first brought to light in Mysore, the discovery being due to Colonel Colin Mackenzie, the distinguished officer who conducted the survey of Mysore in 1799 and following years. They are dispersed throughout India, and their numbers are probably understated at a million and a half according to the census of 1891. They are most numerous in Rajputana, Gujarat, Central India, and Mysore. In the north and west of India they are chiefly engaged in commerce; in the south they are also agriculturists. As before stated, they were more or less predominant in Mysore from the earliest part of the Christian era to the twelfth century. And in the Chola and Pandya countries, and in Kanara (South and North), Dharwar, and other adjacent parts, they were also generally established from a very early period. The oldest Kannada and Tamil literature is of Jain authorship, and to the Jains is due the first cultivation of these languages.

The principal seats of the Jain faith in Mysore now are at S'ravana Belgola in Hassan District, Maleyur in Mysore District, and Humcha in Shimoga District. The first place is the residence of a guru who claims authority over the Jains throughout the south of India, and is, I believe, admitted to be their chief pontiff.[1] The consecration of Chandra-giri, the small hill there, dates back to the third century B.C.

[1] He professes to be guru to all the Jaina Kshatriyas in India; and in an inscription dating so late as 1830, claims to be occupant of the throne of the Dilli (Delhi), Hemádri (Maleyúr), Sudhá (Sode in North Kanara), Sangitapura (Háduvalli), Svetápura (Bilige), Kshemavenu (Múḍu Bidare, these last three in South Kanara), and Belgula (S'ravana Belgola) samsthánas.—*Ins. at Sr. Bel.*, No. 141.

(*see* p. 287). But the foundation of the present religious establishment is attributed to Chámunda Ráya, who, in about 983, set up the colossal statue of Gomata on the biggest hill, Indra-giri or Vindhya-giri. To provide for the maintenance and worship of the image, he established a matha and other religious institutions, with liberal endowments. According to a list from the matha the following was the succession of gurus. They were of the Kundakundánvaya, Múla-sangha, Des'i-gana, and Pustaka-gachcha.

Nemichandra Siddhántáchárya	appointed by	Chámunda Ráya	c. 983
Kundakundáchárya	,,	Pándya Ráya	
Siddhántáchárya	,,	Víra Pándya	
Amalakírtyáchárya	,,	Kuna Pándya	
Somanandyáchárya	,,	Vinayáditya } Hoysala	c. 1050
Tridáma Vibudhanandyáchárya	,,		c. 1070
Prabháchandra Siddhántáchárya	,,	Ereyanga	c. 1090
Gunachandráchárya	,,	Ballála Ráya	c. 1102
S'ubhachandráchárya	,,	Bitti Deva	c. 1110

From 1117 the gurus all bear the name of Chárukírti Panditáchárya, and endowments have been granted to the matha by all succeeding lines of kings.

The Maleyur matha is subordinate to that of Sravana Belgola, and is now closed. According to Wilson, Akalanka, the Jain who confuted the Buddhists at the court of Hemasitala in Kánchi in 788, and procured their expulsion from the south of India, was from Sravana Belgola, but a manuscript in my possession states that he was a yati of Maleyur, and that Bhattákalanka is the title of the line of yatis of that place.

The Humcha matha was established by Jinadatta Ráya, the founder of the Humcha State, in about the eighth century. The gurus, as given in the following list, were of the *Kundakundánvaya* and *Nandi-sangha*. From Jayakírtti Deva they were of the *Sarasvati gachcha*. The descent is traced in a general way from Bhadrabáhu the *s'rutakevali*, through Vis'ákhamuni the *das'apúrvi*, his successor, through Umásváti, author of the *Tattvártha-sútra*, and then the following:—

Samantabhadra, author of *Devágama stotra*.
Pújyapáda, author of *Jainendra vyákarana*, of a *nyása* on Pánini called *Sabdávatára*, and of a *Vaidya s'ástra*.
Siddhántikirtti, guru to Jinadatta Ráya. ?about 730 A.D.
Akalanka, author of a *bháshya* on the *Devágama stotra*.
Vidyánanda, author of a *bháshya* on the *A'ptamímámsa*, also of *Sloka várttikálankára*.
Mánikyanandi.
Prabháchandra, author of *Nyáyakumudachandrodaya* and of a *nyása* on *Sákatáyana*.

Varddhamána munindra, by the power of whose *mantra* Hoysala subdued the tiger[1] 980–1040

His successors were gurus to the Hoysala kings.

Vásupújya vrati, guru to Ballála Ráya 1040–1100

Sripála.
Nemichandra.
Abhayachandra, guru to Charama Kesavárya.
Jayakirtti Deva.
Jinachandrárya.
Indranandi.
Vasantakirtti.
Visálakirtti.
Subhakirtti Deva.
Padmanandi.
Mághanandi.
Simhanandi.
Padmaprabha.
Vásunandi.
Meghachandra.
Víranandi.
Dhanunjaya.

Dharmabhúshana, guru to Deva Ráya 1401–1451
Vidyánanda, who debated before Deva Ráya and Krishna Ráya, ... 1451–1508
and maintained the Jain faith at Bilgi and Kárkala. His sons were:—
Simhakirtti, who debated at the court of Muhammad Shah 1463–1482
Sudarshana.
Merunandi.
Devendrakirtti.
Amarakirtti.
Visálakirtti, who debated before Sikandar and Virúpáksha Ráya ... 1465–1479
Nemichandra, who debated at the court of Krishna Ráya and Achyuta Ráya 1508–1542

The gurus are now named Devendra Tírtha Bhattáraka.

There are two sects among the Jains, the Digambara, clad with space, that is naked; and the Svetámbara, clad in white. The first is the original and most ancient. The yatis in Mysore belong to the former division, but cover themselves with a yellow robe, which they throw off only when taking food. The *yatis* form the religious order, the laity are called *srávakas*. Certain deified men, termed Tirthankaras, of whom there are twenty-four principal ones, are the chief objects of Jain reverence. Implicit belief in the doctrines and actions of these is obligatory on both yatis and srávakas. But the former are expected to follow a life of abstinence, taciturnity and continence; whilst the latter add to their moral and religious code the practical worship of the Tirthankaras and profound reverence for their more pious brethren. The moral code of the Jains is expressed in five *mahá-vratas* or great duties:—refraining from injury to life, truth, honesty, chastity, and freedom from worldly desire. There are four *dharmas* or merits—liberality, gentleness, piety, and penance; there are three sorts of restraint—government of the mind, the tongue, and the person. To these are superadded a number of minor instructions or prohibitions, sometimes of a beneficial and sometimes of a trivial or

[1] For an explanation of this allusion *see* p. 333.

even ludicrous tendency.[1] The Jains hold the doctrine of *Nirvána*, but it is with them a state of beatific rest or quiescence, cessation from re-birth, but not annihilation. The practice of *sallekhana* or religious suicide is considered meritorious, and was at one time not uncommon, especially to bring to a close a life made intolerable by incurable disease or other dire calamity. At the same time, *ahimsá* or avoidance of the destruction of life in whatever shape, is a fundamental doctrine, carried to extremes.

The ritual of the Jains is as simple as their moral code. The *yati* dispenses with acts of worship at his pleasure; and the lay votary is only bound to visit daily a temple where some of the images of the Tirthankaras are erected, walk round it three times, make an obeisance to the images with an offering of some trifle, usually fruit or flowers, and pronounce a mantra or prayer.[2]

The Jains reject the Vedas, and have their own sacred books. The original Púrvas, fourteen in number, were lost at an early period, but the forty-five A'gamas, which include the eleven Angas (specially considered the sacred books), the twelve Upángas, and other religious works have been handed down. In their present form they were, according to tradition, collected and committed to writing in the fifth century at Valabhi, under the directions of Devarddhiganin, but the Angas had previously been collected in the fourth century at Pátaliputra. The sacred language of the Jains is called Arddha-Mágadhi, but is a Prákrit corresponding more with Maháráshtri than with Mágadhi. In the eleventh century they adopted the use of Sanskrit.[3] Caste as observed among the Jains is a social and not a religious institution. In the edicts of As'oka and early Buddhist literature they are called Nirgranthas (those who have forsaken every tie). With reference to their philosophical tenets they are also by the Brahmans designated Syádvádins (those who say *perhaps*, or *it may be so*), as they maintain that we can neither affirm nor deny anything absolutely of an object, and that a predicate never expresses more than a probability.[4]

Pársvanátha and Mahávíra, the twenty-third and twenty-fourth Tirth-

[1] Such as to abstain at certain seasons from salt, flowers, green fruit and roots, honey, grapes, and tobacco; not to deal in soap, natron, indigo and iron; and never to eat in the dark lest a fly should be swallowed. The hair must not be cut but should be plucked out.

[2] The prayer-formula of the Jains is:—Namo Arihantáṇam namo Siddháṇam namo Ayariyáṇam namo Uvajjháyáṇam namo loe sabba-sáhúṇam. (Reverence to the Arhats, to the Siddhas, to the A'cháryas, to the Upádhyáyas, to all Sádhus in the world.)

[3] Jacobi, *Kalpa sútra*.

[4] Barth, *Religions of India*.

ankaras,[1] were historical persons, of whom the former it is supposed was the real founder of Jainism, while the latter, whose country, descent, connections and life bear a close resemblance to those of Buddha (also called Mahávíra and Jina, and the last of twenty-four Buddhas), and whose period also nearly corresponds with his, was its greatest apostle and propagator.

Párs'va or Párs'vanátha was of the race of Ikshváku, and the son of king As'va Sena by Vámá or Bámá Devi. He was born at Bhelupura, in the suburbs of Benares, and married Prabhávati, daughter of king Prasenajita. He adopted an ascetic life at the age of thirty, and practised austerities for eighty days before arriving at perfect wisdom. Once, whilst engaged in his devotions, his enemy Kamaṭha caused a great rain to fall upon him. But the serpent Dharanidhara, or the Nága king Dharana, overshadowed his head with his hood outspread as a chhatra, whence the place was called Ahichhatra.[2] After becoming an ascetic he lived seventy years less eighty days, and at the age of 100 died, performing a fast, on the top of Samet S'ikhara. He wore one garment, and had under him a large number of male and female ascetics. His death occurred 250 years before that of the last Tirthankara, or about 776 B.C.

Varddhamána or Mahávíra, also of the race of Ikshváku, was a Náyaputa or Nátaputta, that is, a Jnátri Rajput and Kshattriya, the son of Siddhártha, prince of Pavana, by Trisalá, and was born at Chitrakot or Kundagráma. He married Yasodá, daughter of the prince Samara Vira, and had by her a daughter Priyadarsana, who became the wife of Jamáli, his nephew, one of his pupils and the founder of a schism. Varddhamána's father and mother died when he was twenty-eight, and two years afterwards he devoted himself to austerities, which he continued twelve years and a half, nearly eleven of which were spent in fasts. As a Digambara "he went robeless, and had no vessel but his hand." At last the bonds of action were snapped like an

[1] The following is the list of the twenty-four Tirthankaras :—

Name.	Sign.	Sásana Devi.	Name.	Sign.	Sásana Devi.
Rishabha or A'dinátha	Bull	Chakresvari	Vimalanátha	Boar	Viditá
Ajitanátha	Elephant	Ajitabalá	Anantanátha	Falcon	Ankus'á
S'ambhava	Horse	Duritári	Dharmanátha	Thunderbolt	Kandarpá
Abhinandana	Monkey	Kálìká	S'ántinátha	Antelope	Nirvání
Sumati	Curlew	Mahákáli	Kunthunátha	Goat	Balá
Padmaprabha	Lotus	S'yámá	Aranátha	Nandyávarta	Dhárini
Supárs'va	Swastika	S'ántá	Mallinátha	Water jar	Dharanapriyá
Chandraprabha	Moon	Bhríkuṭí	Muni Suvrata	Tortoise	Naradattá
Pushpadanta	Crocodile	Sutáraká	Niminátha	Blue waterlily	Gándhárī
S'ítala	S'rivatsa	As'oká	Neminátha	Conch	Ambiká
S'reyams'a	Rhinoceros	Mánaví	Párs'vanátha	Cobra	Padmávatí
Vásupújya	Buffalo	Chanḍá	Varddhamána or Mahávíra	Lion	Siddhayiká

[2] *Ahi*, serpent ; *chhatra*, canopy or umbrella.

old rope, and he attained to *Kevala* or the only knowledge, becoming an Arhant or Jina. Proceeding to Pápapuri or Apápapuri (Páva) in Behar, he commenced teaching his doctrines. Several eminent Brahmans of Magadha became converts and founded *ganas* or schools. The chief of them was Indrabhúti or Gautama (not to be confounded, as has sometimes been done, with Buddha, also so called, who was a Kshatriya). Mahavira continued to teach, chiefly at the cities of Kausambi and Rájagriha, under the kings Sasanika and Srenika, and died at the age of seventy-two at Apápapuri. The date of his death is the era from which Jain chronology reckons, and the traditional date corresponds with 527 B.C., but this should probably be sixty years later.[1]

Buddhism.—The evidence of the establishment of Buddhism in the north of Mysore in the third century B.C., and the efforts made at that time to propagate it in other parts, have already been referred to.[2] The S'átaváhana and Pallava kings, from the remains of their erections at Amarávati and Mámallapura, were to some extent Buddhist, and there are references in early Páli writings to Buddhist scholarship in Karnátaka.[3] Inscriptions record the maintenance, as one of five great maṭhas, of a Buddhist establishment (Bauddhálaya) at Balagámi (Shikarpur taluq), the capital of the Banavasi country, down to 1098, and apparently the residence there at that time of a nun named Nágiyaka. But the long ascendancy of their great rivals, the Jains, makes it unlikely that Buddhists were more than an inconsiderable minority. The Jain traditions, however, preserve some memory of argumentative collisions with expounders of the rival system. A Jain named Akalanka, whom Wilson brings from Sravana Balgola in 788,[4] finally confuted the Buddhists in argument at the court of Hemasitala at Kánchi, and procured their expulsion to Kandy in Ceylon.

So many works are now available on the subject that it is unnecessary in this place to give more than the briefest outline of the life of Buddha and the doctrines he taught.

Gautama (Gotama in Páli) was a Sakya and a Kshattriya, prince of Kapila-vastu, south of Nepal, about 100 miles north-east of Benares. His wife was Yas'odhara. He was naturally of a serious disposition, and had become satiated with a life of pleasure and indulgence, during which every object of sadness had been studiously kept out of his view. The accidental sight, in succession, of an old man, a diseased man, and a dead man, led him to reflect on the illusory nature of youth, health and life. This weighed

[1] Jacobi, *op. cit.*

[2] In Mr. Fergusson's opinion, "it is nearly correct to assert that no people adopted Buddhism, except those among whom serpent-worship can certainly be traced as pre-existing."—*Tr. Ser. Wor.*, 21.

[3] I am indebted for this information to Professor Rhys Davids.

[4] *McK. Coll.*, I, lxv.

on his mind until one day he saw a religious mendicant, calm in his renunciation of the world. It suggested to him a mode of relief. He fled at midnight from the royal palace and all its gay inmates, forsaking his young wife and their infant son, assumed the yellow garb of an ascetic, and gave himself up to austerities and meditation in the forest of Buddha Gaya, acquiring the name of Sákya Muni. But penance and austerities had not power to appease his spiritual yearnings. Eventually, by meditation, he became a Buddha or Enlightened, in order that he might teach mankind the true way of deliverance from the miseries of existence. He entered upon his mission in the district of Magadha or Behar when 35 years old, and died or attained *nirvána* at the age of eighty, while travelling through the country of Kosala or Oudh, about 543 B.C.[1]

After his death a council was held by Ajátasatru, king of Magadha, at which all the teachings and sayings of Buddha were collected into three sets of books, called Tripiṭaka, the three baskets or collections, which form the Buddhist sacred scriptures. Of these the Sútra piṭaka contains the maxims and discourses of Sákya Muni, which had all been delivered orally ; the Vinaya piṭaka relates to morals and discipline ; and the Abhidharma piṭaka is philosophical. Three other great Buddhist councils were held, one in the middle of the fifth century B.C. by Kalasoka, when the scriptures were revised ; the third by Asoka in 246 B.C., after which missions were sent abroad for the propagation of the faith ; and the fourth by Kanishka, king of Kashmir, in the first century A.D., when the Tripiṭaka were finally established as canonical. According to some accounts they were not committed to writing before this. The sacred language of the Buddhists is Páli.

Buddhism may be described as two-fold, consisting of *dharma*, or religion, and *vinaya*, or discipline. Buddha's enlightenment had led him to recognize *existence* as the cause of all sorrow. *Avidya* or ignorance was the remote cause of existence, and *nirváṇa* or extinction of existence the chief good.

The dharma or religion was for the masses or the laity, the so-called ignorant, who had no longing for nirvána, but only desired a happier life in the next stage of existence ; for life, of gods and animals as well as of men, was held to continue through an endless series of transmigrations, introducing to a higher or a lower grade according to the merit or demerit of the previous existence. This religion was based upon the law of universal benevolence or kindness, and found expression in five great commandments, namely, against killing, stealing, adultery, intoxication, and lying, each of which was amplified into numerous precepts intended to guard not only against the

[1] This is the traditional date, but the correct date is probably about 412 B.C., according to Rhys Davids (*Numis. Or.*, Ceylon), or between 482 and 472 according to others.—Barth, *Rel. of Ind.*, 106.

commission of sin but against the inclination or temptation to sin. The practice of universal goodness or kindness, in thought, word and deed, was the only way by which man could raise himself to a higher state of existence.

The vinaya or discipline was for the wise, the monastic orders, those who cared not to continue in the vortex of transmigrations, but sought only to purify their souls from all desire for the hollow and delusive pleasures of the world and to escape from all the pains and miseries of existence into the everlasting rest of nirvána. To effect this deliverance it was necessary to renounce five things, namely, children, wife, goods, life and self; in short, to lead a religious life of celibacy, mendicancy and strict discipline, in order that the soul might be freed from every stain of affection or passion. Four great truths, known as the *law of the wheel*, resulted in indicating four paths to nirvána, namely, perfection in faith, in thought, in speech, and in conduct: and the only true wisdom was to walk in these paths. The Buddhist formula of faith is expressed in words meaning, "I go for refuge to the Buddha, the Dharma and the Sangha."

At the time when Buddha began to proclaim his doctrines, all the affairs of life were supposed to be regulated by the rigid code of Manu.[1] Religion consisted in ceremonial observances, which beset every moment of existence from birth to death, and its advantages were confined to an exclusive caste, whose instrumentality alone could render any ceremony efficacious. Buddhism was a revolt of the religion of humanity against the ritualism and asceticism, the lifeless superstition and arrogant pretensions of the Brahmanical priesthood.[2] It taught that religion

[1] But it may be questioned whether the code was not as much a theoretical system of the claims of the hierarchy as one in practical operation.—*cf.* Auguste Barth as translated *Ind. Ant.*, III, 329.

[2] "The revolt of Buddhism against Brahmanism is only to be appreciated by those who are familiar with the results of both systems. The India of the present day presents many of the characteristics which must have distinguished ancient India prior to the advent of Gotama Buddha. It is a land of deities, temples and priests. The whole Indian continent is dotted with little sanctuaries which appear like the sepulchres of defunct gods, whose grotesque and distorted effigies are to be seen within; and fathers and mothers bow down to these idols, praise them, propitiate them with gifts and offerings, and invoke them for help and prosperity. Again, there are temples of more colossal dimensions, with pyramidal towers or cone-shaped domes covered with sculptures and surrounded by walls, courtyards and roofed passages. But all are of the same sepulchral character. Some are the receptacles of archaic gods, who are arrayed in jewels and tinsel; but even these deities are little better than the gaudy mummies of a primeval age. The women alone seem to be fervent worshippers, for the men have begun to groan beneath the oppression of idolatry and Brahmanism. Indeed the rapacity of the temple-priests is unbounded, whilst their culture is beneath contempt. They celebrate their festivals like children

consisted in the suppression of evil desire, the practice of self-denial, and the exercise of active benevolence ; and that men and women alike, and that of all castes, may equally enjoy the benefits of a religious life. Hence thousands and tens of thousands, both high and low, hastened to embrace the new faith, and Buddhism continued to grow till the time of Asoka, under whom it was established as the dominant religion of India.

Hinduism.—It is next to impossible (M. Barth remarks) to say exactly what Hinduism is, where it begins, and where it ends. Diversity is its very essence, and its proper manifestation is sect—sect in constant mobility. The rise of the religions comprised under this head was in general due to the unsatisfactory nature of the old Brahmanical theology, the divinities of which had gradually retired and disappeared behind a host of abstractions too subtle to affect the conscience of the masses. But they did not, like Buddhism, openly sunder all connection with the past. They, on the contrary, claim to be its continuation, or rather they represent themselves to be that very past unchanged and unmodified. Most of them profess to be based on the Veda, with which at bottom they have almost nothing in common, and which they virtually superseded by a quite different literature, but to which they nevertheless continue to appeal as their highest authority. The characteristic common to the majority of these religions is the worship of new divinities exalted above all the rest, identified either with Siva or with Vishnu.[1] And it is singular that the Mysore country should have been the home or refuge of the two principal founders and exponents of the Sáiva and Vaishnava creeds respectively.

Though it is sought to identify Siva with Rudra of the Vedas, who is there introduced in a very subordinate position, it is doubtful whether there is any correspondence between them ; and if the one was a later development out of the other, there is no trace whatever of the process by which Siva was raised to a supreme position as a chief member of the Trimurti or Hindu trinity. How again the *linga*, under which form he has for centuries been worshipped, came to be associated with Siva is unknown. The introduction of an entirely new divinity from the mountains of the north has been supposed, who was grafted in upon the ancient religion by being identified with Rudra ; and it is not impossible that the linga may have been an object of veneration among

playing with dolls. They carry the gods in procession, or induce the gaping crowd to drag them along in huge idol cars ; but they cannot evoke those joyous outpourings of adoration or thanksgiving which indicate the presence of religious feeling in the hearts of the worshippers."—Talboys Wheeler, *Hist. Ind.*, III, 94.

[1] *Rel. of Ind.*, 153, 159.

the aboriginal or non-Aryan Indians, and that it was subsequently adopted by the Brahmans from them and associated with the worship of Rudra.[1]

The legend regarding Daksha's sacrifice seems to bear out these views. The probable interpretation of it is that Siva—a deity according to Gorresio of Cushite or Hamitic tribes which preceded on the soil of India the Aryan or Indo-Sanskrit races—wished to have a part in the worship of the conquerors and in their sacrifices, from which he was excluded ; and by disturbing their rites and by a display of violence at their sacrifices, he succeeded in being admitted to participate in them.

The worship of Siva succeeded Buddhism, but the period which intervened before the supremacy of Siva was generally accepted brought to the surface many Hindu gods as candidates for the popular favour. The records of Sankaráchárya's polemical victories show that in his time there prevailed, among others, the worship of Brahma, Agni, Súrya, and Ganes'a. None of these have now distinct classes of worshippers, but Ganes'a shares a sort of homage with almost all the other divinities. There were also sects devoted to the exclusive worship of the female deities Bhaváni, Lakshmi, Sarasvati ; and also of Bhairava.

The account of Gritsamada in the Ganes'a purána is supposed to contain an allusion to the period of transition.

A king named Rukmánga one day lost his way in the woods while hunting, and came to the hermitage of a rishi, whose wife fell in love with him ; when he refused her solicitations, she cursed him, and he was attacked with leprosy, which was eventually cured through the favour of Ganes'a. But Indra, it is stated, assuming the form of the king, gratified her desires, and the fruit of the connection was the sage Gritsamada, the author of certain hymns of the Rig-veda. He was not aware of his origin until attending once at a ceremony with the intention of taking part in it, the Brahmans present reproached him as of spurious descent, called him the son of Rukmánga, and ordered him to quit the assembly. Stung to the quick, he went to his mother, and on her acknowledging her guilt he cursed her to become a jujube-tree, *badari*, and she retorted that he should be a Brahma Rákshasa.

He now joined himself to certain munis of a different persuasion, and thence before long devoted himself to meditation on the Supreme Being, standing on his great toe, with his mind intensely fixed on the deity. At length Ganes'a appeared to him and granted certain boons. He thus

[1] It may be noticed that Brahmans do not officiate in Siva temples: these are served by an inferior order of priests called *Siva dvija*. A few exceptions, however, seem to exist in what are distinguished as Vaidika Siva temples, such as the famous one of Visvesvara at Benares.

became an object of reverence and even worship to the other sages. Gritsamada continued thus in meditation, when one day on opening his eyes a beautiful boy came up to him, who prayed to be adopted as his. Gritsamada complied with his request, taught him the mystic incantation OM, and sent him away to stand on his great toe contemplating the supreme Ganes'a. The deity after a long interval appeared and desired him to ask a boon. He accordingly requested the power of conquering the three worlds, which was granted, together with immunity from any weapon except that of Siva; and it was added that he should possess three famous cities, one of iron, one of silver, and one of gold, and that on leaving the world he should be absorbed into the divine essence.

This wonderful child was no other than the famous Tripurásura. He vanquished Indra and all the gods, and reduced them to the greatest state of leanness and distress by putting a stop to the offering up of the oblations which mortals had been accustomed to present to them. He took possession of the abodes of Brahma, Vishnu and Siva, while Ganes'a in disguise built for him the three famous cities, one of iron, one of silver, and one of gold. Siva now did penance to Ganes'a, who at length appeared and granted him the boon of victory over their enemy. The gods, led by Siva, overcame Tripurásura and consumed with fiery darts the three cities.

Now this account evidently indicates a period when the religious system of the Brahmans was superseded by another, which Gritsamada partly learned from sages of a different persuasion after he had been expelled from the society of the Brahmans, and which he taught to Tripurásura, who thereby gained the supremacy over heaven and earth, and thrust down from heaven all the Brahmanical deities. This system consisted of spiritual and mystical contemplation of the Supreme Being, which, with other features, corresponds so well with the main characteristics of Buddhism that we seem here to have an allegory of the ascendancy of that faith and its overthrow by the revival of the worship of Siva.[1]

It has been noticed here on account of its apparent localisation in certain parts of Mysore, and Gritsamada in one account is said to be of Haihaya descent. Thus Rukmánga, it will be seen from the account of the Kadur District, is claimed to have been the king of Sakkarepatna. The *yagache*, or in Sanskrit *badari*, is the name of the neighbouring stream, which flows from the Baba Budan mountains past Belur to the Hemavati, and which is so-called from its source at the jujube-tree, into which form Gritsamada doomed his mother to pass. Tripura and Tripurásura we have more than once had occasion to refer to. From the drops of sweat which fell from Siva after his contest with Tripurásura are fabled to have sprung the Kadamba line of kings. And the introduction of Brahmans into the north-west of

[1] *J. R. A. S.*, VIII.

Mysore by Mayuravarma of that line was no doubt one of the earliest results of a declension of Buddhist influence.

The Buddhist writer Táránátha, the Jaina writer Brahmanemidatta, and the Brahmanical writer Mádhaváchárya are all agreed in dating the final decline of Buddhism from the time when the illustrious authors Kumárila Bhaṭṭa, Akalanka-deva, and S'ankaráchárya appeared in Southern India,[1] that is, the eighth century. The first was celebrated as a great teacher of the Mímámsa philosophy (the Púrva Mímámsa) and a dreaded antagonist of both Jainas and Bauddhas. He strenuously asserted the pretensions of the Brahmans, affirming that, as Kshatriyas and Vais'yas, the Jainas and Bauddhas were by nature incapable of the highest spiritual discernment, which was inherent in the Brahmans alone. Akalanka was the Jaina already referred to above (p. 465).

S'ankaráchárya was a great religious reformer, and teacher of the Vedánta philosophy (the Uttara Mímámsa). He was a prime agent in bringing about the establishment of Siva worship, and was the founder of the Smárta sect.

He was born in 737 A.D., and is most generally acknowledged to have been a Brahman of Cranganore in Malabar, though his actual birthplace was in the north of Travancore. He was consecrated as a sannyási at the age of eight years by Govinda yogi, and his life was spent in controversy with the professors of various religious sects, whom he successfully refuted, as recorded in the *Sankara Vijaya* and several other similar extant works. In the course of his wanderings he visited the greater part of India, and eventually went as far as mount Kailása. He set up a linga at Kedára and returned by way of Ayodhya, Gaya and Jagannáth to S'ris'aila, where he encountered Bhaṭṭácharya (that is, Kumárila), who had, it is said, ground the Bauddhas and Jainas in oil-mills. The latter declined to argue, but referred him to Mandana-misra, married to his younger sister, who was an incarnation of Sarasvati. Thither Sankaráchári repaired, and though successful in defeating the husband, was overcome in an argument on sensual pleasures with the wife, who proved more than equal to him in discussions of this nature. He thereupon went to Amritapura, and animated the dead body of its prince, named Amaru, in whose form he gained familiarity with the subject by practice in the gratification of the passions, and then returning was victorious over her. The throne of Sarasvati on which he then sat is still shown in Kashmir. Consecrating Mandana-misra as a sannyási under the name of Suresvaráchárya, he bound Sarasvati or S'árad-amma[2] with spells and conveyed her to Sringa-giri

[1] Pathak, *J. Bo. Br. R. A. S.*, XVIII, 238.

[2] Kashmir is sometimes called Sáradá-desa, and its ancient manuscripts are written in Sáradá characters.—*Ind. Ant.*, V, 28.

(Sringeri), where he established her throne. There he remained, and ended his days twelve years afterwards, at the age, it is said, of thirty-two.[1]

But his influence was perpetuated in his writings. He is the most celebrated of all commentators, and his works are almost countless, including commentaries on the Upanishads, Vedánta sútras and Bhagavad Gita. The sect of Vedántists founded by him has always held the highest reputation for learning, and is distinguished for the cultivation of the study of Sanskrit and especially of the vedic literature. It is also the most unsectarian, admitting in fact all other objects of worship as but manifestations of Siva or Mahádeva, the Great God.

The Vedántist system advocated by S'ankara is pantheistic, and based on the doctrine of *advaita* or non-dualism, which means that the universe is not distinct from the Supreme Soul. The leading tenet of the sect is the recognition of Brahma Para Brahma as the only really existing Being, the sole cause and supreme ruler of the universe, and as distinct from Siva, Vishnu, Brahma, or any individual member of the pantheon: to know Him is the supreme good. The attainment of complete wisdom results in *mukti* or liberation, and re-union with the divine essence. But as the mind of man cannot elevate itself to the contemplation of the inscrutable First Cause and Only Soul, he may be contemplated through inferior deities and sought through the prescribed rites and exercises. This creed thus tolerates all the Hindu deities, and the worship of the following was, by Sankarácházi's express permission, taught by some of his disciples:—that of Siva, Vishnu, Krishna, Súrya, Sakti, Ganes'a and Bhairava.

"Individual souls emanating from the supreme one are likened to innumerable sparks issuing from a blazing fire. From him they proceed, and to him they return, being of the same essence. The soul which governs the body together with its organs, neither is born nor does it die. It is a portion of the divine substance, and as such infinite, immortal, intelligent, sentient, true. It is governed by the supreme. Its activity is not of its essence, but inductive through its organs: as an artisan taking his tools labours and undergoes toil and pain, but laying them aside reposes, so is the soul active and a sufferer by means of its organs, but divested of them and returning to the supreme one is at rest and is happy. It is not a free and independent

[1] Wilson makes him die at Kedarnáth in the Himálayas (*Wks.* I, 200). But it will be seen that he apparently died at Sringeri. The succession of gurus at Sringeri is traced from him directly, and a small temple is there shown as the place where he disappeared from life. It contains a statue of him, seated after the manner of Buddhist and Jain images.

agent, but made to act by the supreme one, who causes it to do in one state as it had purposed in a former condition. According to its predisposition for good or evil, for enjoined or forbidden deeds, it is made to do good or ill, and thus has its retribution for previous works."

The Sringéri swámi or head of the maṭha or monastery at Sringeri, the principal one established by Sankaráchárya, is styled the Jagat Guru, or Jagad-Guru, the priest of the world, and is possessed of extensive authority and influence. The maṭha is situated on the left bank of the Tunga, in the centre of a fertile tract, with which it was endowed about 400 years ago by the Vijayanagar kings. The estate yields a revenue of Rs. 50,000 a year, and a further sum of Rs. 10,000 a year is received from the Mysore State. But the expenses connected with the feeding of Brahmans, and the distribution of food and clothing on festival days to all comers of both sexes, exceed the income, and the Guru is constantly engaged in long and protracted tours through various parts for the purpose of receiving contributions from his disciples. He wears a tiara like the Pope's, covered with pearls and jewels, said to have been given to him by the Peshwa of Poona, and a handsome necklace of pearls. His sandals are covered with silver. He is an ascetic and a celibate, and in diet very abstemious. He is borne along in an *aḍḍa pálki* or palanquin carried crossways, which prevents anything else passing. He is attended by an elephant and escort, and accompanied by a numerous body of Brahmans and disciples.

The following is the succession of Sringeri gurus, obtained from the maṭha :—

	Consecrated.	Died.
Sankaráchárya (born A.D. 737)	745	769
Suresvaráchárya	753	773[1]
Nityabodhaghanáchárya	758	848
Jnánaghanáchárya	846	910
Jnánottamasiváchárya	905	953
Jnánagiri áchárya	949	1038
Simhagirisvaráchárya	1036	1098
Isvaratirtháchárya	1097	1146
Narasimha muni or múrti	1145	1228

[1] This date is plainly given in the annals, according to the Salivahana saka. But the preceding dates are absurdly referred to the Vikrama saka, in the fourteenth year of which Sankaráchárya is said to have been born ; and to connect the two eras, Suresvaráchárya is gravely asserted to have held his authority 800 years, although only thirty-two years are granted to Sankaráchárya. Accepting the succession as correct, I have taken the names of the years, and calculated the preceding dates accordingly. That Sankaráchárya lived in the latter part of the eighth century has been conclusively proved by Mr. Pathak (*J. Bo. Br. R. A. S.*, XVIII, 88 ; *Proceedings Ninth Oriental Congress*), as admitted by Dr. Bühler and M. Barth.

	Consecrated.	Died.
Vidyasankara swami...	1228	1333
{ Bhárati Krishna tirtha	1328	1380
{ Vidyáranya	1331	1386
Chandrasekhara Bhárati	1368	1389
Narasimha Bhárati	1387	1408
Bhaktasankara Purushottama Bhárati	1406	1448
Sankaránanda Bhárati	1428	1454
Chandrasekhara Bhárati	1449	1464
Narasimha Bhárati	1464	1479
Purushottama Bhárati	1472	1517
Rámachandra Bhárati	1508	1560
Narasimha Bhárati	1557	1573
Narasimha Bhárati	1563	1576
Immadi Narasimha Bhárati	1576	1599
Abhinava Narasimha Bhárati	1599	1622
Sachchidánanda Bhárati	1622	1663
Narasimha Bhárati	1663	1705
Sachchidánanda Bhárati	1705	1741
Abhinava Sachchidánanda Bhárati	1741	1767
Nrisimha Bhárati	1767	1770
Sachchidánanda Bhárati	1770	1814
Abhinava Sachchidánanda Bhárati	1814	1817
Narasimha Bhárati	1817	1879
Sachchidánanda Sivábhinava-Narasimha Bhárati	1867 (now guru, 1895)	

Rámánujáchárya.—The next great religious movement took place at the beginning of the twelfth century, and is identified with Rámánujáchárya. He was born at Sri Permatur near Madras, and studied at Conjeveram. He then retired to the island of Sri Ranga (Seringam), at the parting of the Kaveri and Coleroon, and there perfected his system and composed his religious works. He then travelled over great part of Southern India, defending and expounding the Vaishnava creed. He established several maths, the principal one being at Ahobala. He also converted or restored many Saiva temples to the worship of Vishnu, among others the celebrated temple of Tirupati. The Chola king Karikala Chola, in whose dominion Sri Ranga was situated, was an uncompromising Saiva, and on Rámánujácharya's return thither after these religious successes, he was required in common with all the Brahmans to subscribe to a declaration of faith in Siva. To escape persecution he fled to the Hoysala kingdom in Mysore. Here he converted from the Jain faith the king thenceforward known as Vishnuvarddhana, the date assigned to this event being 1117. Having put down the Jains by the severest measures, he settled under the royal favour and protection at Melukote, and there established his throne, which is still occupied by the guru known as the Parakálaswámi. After twelve years, on the death of the Chola king, he returned to Sri Ranga and there ended his days.

The chief religious tenet of the sect of Rámánujas or Sri Vaishnavas founded by him is the assertion that Vishnu is Brahma, that he was before all worlds, and was the cause and creator of all. Although they maintain that Vishnu and the universe are one, yet, in opposition to the vedanta doctrines, they deny that the deity is void of form or quality, and regard him as endowed with all good qualities and with a two-fold form—the supreme spirit, Paramátma or cause, and the gross one, the effect, the universe or matter. The doctrine is hence called the *vis'ishṭádvaita*, or doctrine of unity with attributes.

Besides his primary and secondary form as the creator and creation, the deity has assumed at different times particular forms and appearances for the benefit of his creatures, hence the avatáras, &c.[1] The prescribed acts of adoration are the cleaning and purifying of temples and images, presentation of flowers and perfumes, repeating the divine names, and effort to unite with the deity. The reward of these acts is elevation to the heaven of Vishnu, for perpetual residence there in a condition of pure ecstasy and eternal rapture.

Harihara.—The form Harihara, a combination of Hari or Vishnu and Hara or Siva, is declared in inscriptions to have been revealed at Kúḍalúr,[2] for the destruction of a giant named Guhásura, who opposed the vedas; and also to establish the *veda váda*, or sayings of the veda, regarding the *advaita*, the non-duality or unity, of Vishnu and Siva. A similar form seems to be worshipped in Kanara under the denomination of S'ankara Náráyana. The terms are evidently indicative of toleration or compromise, but the history of this manifestation is obscure. In Mysore the worship of Harihara is almost, if not entirely, confined to the town on the Tungabhadra bearing the same name.[3] The existing temple was built in 1223, by Polálva, the general of the Hoysala king Narasimha II.

[1] Mr. Fergusson speculates as follows:—Recent discoveries in Assyria seem to point to that country as the origin of much that we find underlying the local colouring of the Vaishnava faith. Garuda, the eagle-headed vahana and companion of Vishnu, seems identical with the figure now so familiar to us in Assyrian sculpture, probably representing Ormazd. The fish-god of the Assyrians, Dagon, prefigures the fish avatar of Vishnu. The man-lion (nara-simha) is not more familiar to us in Assyria than in India, and tradition generally points to the West for the other figures scarcely so easily recognized, more especially Bali, whose name alone is an index to his origin; and Mahishásura, who by a singular inversion is a man with a bull's head instead of a bull with a man's head, as he is always figured in his native land. It is worthy of remark that the ninth avatar of Vishnu is always Buddha himself, thus pointing to a connection between these two extremes of Indian faith.—*Ind. Arch.*, 324.

[2] That is, apparently, at the junction of the Haridra and Tungabhadra.

[3] Converted into Hurryhur, Harry Heir, Hurry Hurry and other ludicrous forms in the military histories.

Lingáyits.—About 1160, little more than forty years after the establishment of the Vaishnava faith in Mysore by Rámánujácharya, arose the well-known sect of Siva worshippers called Lingáyits, chiefly composed of the Kannaḍa and Telugu-speaking races.

Basava, the founder of the sect, whose name literally means bull, was in fact regarded as the incarnation of Nandi, the bull of Siva. His political career has been sketched in connection with the history of the Kalachuryas. He was the son of an A'rádhya Brahman, a native of Bagwadi in Belgaum. According to the legends, he refused to wear the brahmanical thread because its investiture required the adoration of the sun, and repaired to Kalyána, the capital of Bijjala, where he became, as elsewhere related, the prime minister, and where he founded the new sect.

Its distinctive mark was the wearing on the person of a *jangama lingam* or portable linga. It is a small black stone, about the size of an acorn, and is enshrined in a silver box of peculiar shape, which is worn suspended from the neck or tied round the arm. The followers of Basava are properly called Lingavantas, but Lingáyits has become a well-known designation, though not used by themselves; the name Sivabhakta or Siváchár being one they generally assume.

Basava rejected the authority of the Vedas and the Brahmans, together with the observances of caste, pilgrimage, and penance. These continue to be fundamental distinctions of the sect.[1] He declared that all holiness consisted in due regard for three things—guru, linga, and jangam—the guide, the image, and the fellow-religionist. The guide or confessor can be any man or woman who is in the creed; who whispers the sacred mantram in the ear of the jangam or worshipper; and hangs the image on the neck or binds it on the arm. A guru is forbidden to eat flesh, to chew betel or touch liquor, and wears a *kempu kávi vastra* or garment died with red ochre. Those who adopt the extreme views of this sect are termed Víra Saivas, ultra or warrior followers of the Saiva system, a term which indicates their polemical zeal.

The sacred books of the sect are the Basava Purána and Channa Basava Purána, written in Hala Kannada, but not of the oldest form. They consist of tales and miraculous stories regarding their gurus and saints, and of this nature is nearly all their literature, whose character is more popular than learned. The Lingáyit faith soon spread through the north-west of Mysore, and, according to tradition, within sixty years of Basava's death, or 1168–1228, it was embraced from Ulavi, near Goa, to Sholapur, and from Bálehalli or Bálehonnur (Koppa taluq) to Sivaganga (Nelamangala taluq). It was the State religion of

[1] They disapprove of child marriage, and permit the re-marriage of widows.

the Wodeyars of Mysore from 1399 to 1610, and of the Náyaks of Keladi, Ikkeri, or Bednur from 1550 to 1763. The principal Lingáyit maṭhs in the Mysore country are the Murigi maṭh at Chitaldroog, and the Bále Honnúr maṭh, but there are numerous others.

Madhváchárya, the founder of the sect of Mádhva Brahmans, is the representative of another religious movement, the result of which was to effect a certain compromise between the worship of Vishnu and Siva, though maintaining the supremacy of the first.

Madhváchárya, represented as an incarnation of Váyu, the god of the air, was by birth probably a Saiva Brahman. He was born in Tuluva or S. Canara in A.D. 1199, and was educated at Anantesvara, where he was initiated into the Saiva faith. But he subsequently became a convert to the Vaishnava faith, and set up the sálagráms at Uḍipi, Madhyatala and Subrahmanya. He also set up an image of Krishna at Uḍipi, which has since continued to be the chief seat of the sect. He resided there for many years and composed a number of works. At length he went on a controversial tour, in which he triumphed over various teachers, and finally in his seventy-ninth year departed to Badarikásrama. He established eight temples of Vishnu under different forms, all in Tuluva, under as many sannyásis, each of whom in turn officiates as superior of the chief station at Uḍipi for two years. Other maṭhas were established above the Ghats, those in Mysore being at Sosile and Hole Narsipur.

The creed of the Mádhvas is *dvaita* or duality, that is, they regard *jívátma* or the principle of life as distinct from *Paramátma* or the Supreme Being. Life is one and eternal, dependent upon the Supreme and indissolubly connected with, but not the same with him. Hence they reject the doctrine of *móksha* in the sense of absorption into the universal spirit and loss of independent existence after death.

The religious observances of the Mádhvas consist in three methods of devotion to Vishnu, namely, *ankana*, *námakarana* and *bhajana*: or marking the body with his symbols, especially with a hot iron; giving his names to children, and other objects of interest; and the practice of virtue in word, act and thought. Truth, good council, mild speaking, and study belong to the first; liberality, kindness, and protection to the second; and clemency, freedom from envy, and faith to the last. These ten duties form their moral code.

Sátánis.—The caste system and supremacy of the Brahmans had been rejected by Basava and the Lingáyits for the Saivas. A similar movement was later inaugurated for the Vaishnavas, giving rise in the north to widely popular sects, and in the south to the Sátánis.

Rámánand, a disciple descended from Rámánuja, about the end of the fourteenth century, after travelling through various parts of India, was on

his return to his maṭha denied the privilege of eating with the other disciples, on the ground that he had not observed the privacy in his meals which is a vital observance with the Rámánujas or Sri Vaishnavas. He was highly incensed, and, proceeding to Benares, established a sect of his own, to whom he gave the name of *Avadhúta* or liberated, as holding that all personal distinctions of rank or caste were merged in the holy character. He had twelve disciples, of whom the most famous was Kabir, the weaver, the popular reformer of Bengal.

In the same sect arose Chaitanya. He was born at Nadiya in 1485, and was the son of a Brahman from Sylhet, but is represented as an incarnation of Krishna. At the age of twenty-four he abandoned his family and domestic life, and began his career as a religious devotee and teacher. For six years he travelled between Mathura and Jagannáth, teaching his doctrines and acquiring followers, and finally settled at Niláchala or Cuttack, where he remained eighteen years, engaging deeply in the worship of Jagannáth, to whose festival at Puri he seems to have communicated great energy and repute. Later, his intent meditation on Krishna seems to have brought on mental derangement. He became subject to visions and dreams, and died in 1534, at the age of forty-eight.

The Sátánis derive their name either direct from him, or from Sátánana, one of his chief disciples. The whole religious and moral code of the sect is comprised in one word—*bhakti*—a term that signifies a union of implicit faith with incessant devotion, and which consists in the momentary repetition of any name of Krishna (*náma kírtana*), under a firm belief that such a practice is sufficient for salvation. The principle of devotion is exemplified and illustrated by the mutual loves of Rádhá and Krishna.

The most popular religious observances connected with the Brahmanical deities at the present time seem to be pilgrimages, and the celebration of the annual car festivals, which are not, however, frequented to the same extent as formerly. The maintenance of these gatherings is no doubt greatly due to the combination of business with religion. Traders from all parts eagerly carry their goods to a scene where they are likely to meet with thousands of customers, and the rural population are glad of the chance of purchasing wares which they cannot so easily meet with at other times. Hence, apart from the religious merit to be acquired, these occasions, which generally fall in the season when there is no work in the fields, affords a pleasant excitement to all.

For certain of the great temples there are touts sent all over the country by the managers, to announce the dates of the feasts and to secure pilgrims. The shrine of Tirupati in North Arcot is one of the most celebrated, and is now easily reached by rail. The Subrahmanya

festival and that of Chunchankaṭṭe are also very popular, as well as those accompanied with cattle fairs at Nandi and Avani. The Navarátri is the chief festival at Sringeri, the Vaira Muḍi at Melukote, the Tippa Rudra at Nayakanhaṭṭi : a list is given with each District in Vol. II of the principal *játres*, *parishés* and *rathótsavas*.

The Hindu festivals most generally observed by all sects are the Holi and the Dasara, which respectively mark the seasons of the vernal and autumnal equinox ; the Pongal, at the time of the winter solstice ; the Di'pávali, or feast of lights ; and the Yugádi or new year's day. The Sivarátri, or watch-night of fasting, is kept by all the adherents of Siva.[1]

Islam.—The commercial intercourse which existed from the remotest times between the western coast and Arabia doubtless led to a spread of Muhammadan influence into the neighbouring countries, but the first appearance of Musalmans by land south of the Vindhya mountains was in 1294, in the invasion of Alá-ud-Din, who captured Devagiri. Their introduction into Mysore was probably in 1310, when Dorasamudra, the capital of the Hoysala kingdom, was taken by the Muhammadan general Malik Káfur. There is a story that the Sultan's daughter fell in love with the king Ballála from the reports of his valour, and threatened to destroy herself unless married to him. Eventually his sword was sent as his representative, with a due escort, and to that the princess was formally wedded, and then joined the king. They lived happily for ten years, after which he was induced, by the consideration that he was a Rajput and she of inferior caste, to put her away, which provoked, it is said, the second invasion of 1326. Under the Vijayanagar empire, the continued rivalry and struggles between that power and the Bahmani and Bijapur Pathan kingdoms gave occasion for the further introduction of Islam into Mysore. But it was in 1406, in the reign of Deva Raya, who, as elsewhere related, gave his daughter in marriage to Firoz Shah, that Musalmans were first enlisted into the Vijayanagar army. The Raja built them a mosque, and had the Koran placed before his throne in order to receive their obeisance, which they refused to make to him as an idolater, but willingly made to their sacred book. Subsequently, about 1560, a Musalman force from Bijapur assisted the usurper Tirumal Rao, and a little later the Vijayanagar army helped Bijapur against Ahmadnagar.

The permanent settlement of Musalmans in Mysore may be assigned with certainty to the time, first, of the Bijapur conquest under Randulha Khan in 1637, and second, to the Mughal conquest under

[1] The religious endowments are noticed elsewhere.

Khasim Khan in 1687 and the formation of the Province of Sira. By settlement, conquest, and conversions there were considerable numbers of Muhammadans employed in the military and other services in the territories of Mysore, Bednur, Chitaldroog and other provinces at the time of Haidar Ali's usurpation in 1761. A Nevayet commanded the forces of Bednur in the decisive battle of Mayakonda in 1748, when Madakeri Nayak fell, and Chanda Sahib, whose cause he had espoused, was taken prisoner, his son being also slain. Under Haidar Ali there was doubtless a considerable accession to the Musalman ranks, by forcible conversion of captives in war and other means; but the dark and intolerant zeal of Tipu Sultan made the cause of Islam a pretext for the most terrible persecutions and degradation, with the avowed object of extinguishing every other form of belief. The chapter on Ethnography shows the present numbers of the Muhammadan subjects of Mysore, with other particulars regarding them.

It is unnecessary in this work to give an account of the life of Muhammad, or of the tenets and propagation of the religion established by the Arabian prophet in the seventh century. They are contained in every general history. Its fundamental idea is entire submission of the will to God. Faith (*imán*) includes belief in one God, and in Muhammad as his prophet; also in the Koran and its teachings. Practical religion (*dín*) consists of the following observances:—recital of the *kalma* or formula of belief, prayer with ablutions, fasting, alms-giving, pilgrimage, especially to Mecca (*hajj*). The *kalma* or creed sums up the belief in one sentence:—"There is no God but God, and Muhammad is God's prophet." Four revelations are acknowledged, namely, those given to Moses, to David, to Jesus, and to Muhammad, but the last is final and implicitly to be believed under the severest penalties. Prayer is enjoined daily, at five stated times. The chief season of fasting is the month of Ramzán, when thirty days of abstinence are observed. The Muharram, properly a season of lamentation, is generally kept here as a festival. The principal other public feasts are the Bakr-íd and Shube-barát.

Christianity.—Christianity was introduced into the south of India, on the Malabar coast, in the first century, perhaps by St. Thomas the Apostle.[1] The tradition is that he suffered martyrdom at the Little Mount, near Madras, in consequence of a tumult raised against him at Mailapur (San Tomé or St. Thomé, a suburb of Madras).[2] Whatever

[1] According to another version, by St. Bartholomew.

[2] Marco Polo, who visited the place in the thirteenth century, was told the story of the death of St. Thomas as follows:—"The Saint was in the wood outside his hermitage saying his prayers: and round him were many peacocks, for these are

amount of truth there may be in that account, his visit to this country seems borne out by the following evidence, namely, by the *Acta Thomæ*, a work which is attributed by Dr. Haug to the end of the second century, and is mentioned by Epiphanius, Bishop of Salamis, in 368; by the *Teaching of the Apostles*, a Syriac document older than the Nicene Council of 325; and by the connection which was kept up between the early Christians of Malabar and the church of Edessa in Persia, of which St. Thomas is said to have been the first apostolic overseer and director. Alfred the Great of England sent ambassadors with presents to the shrine of St. Thomas in India in the ninth century.

The existence of the early Christian communities of the western coast rests upon trustworthy evidence. Passing over the statement by Eusebius and Jerome that Pantænus visited India in the second century and found there a Christian community who possessed the Gospel of St. Matthew in Hebrew, Cosmas Indicopleustes informs us that there was a Christian bishop in the sixth century at Kalyana, near Udupi; and it is known from existing grants that in their first colony at Cranganore the Christians were privileged before the ninth century to elect their own chief, but acknowledged the supremacy of the Cochin Rája. A further proof of the settlement of Christians is found in the crosses with Pahlavi inscriptions, probably of the seventh or eighth century, which have been found at the Mount near Madras, and at Kottayam in Travancore.[1] These communities were known as Nestorians, and still exist under the name of Syrian Christians.

The close connection of the greater part of Mysore with Malabar and the west coast, affords ground for supposing that Christian influences may even at that early period have been extended to this

more plentiful in that country than anywhere else. And one of the idolaters of that country, having gone with his bow and arrows to shoot peafowl, not seeing the Saint, let fly an arrow at one of the peacocks, and this arrow struck the holy man in the right side, insomuch that he died of the wound, sweetly addressing himself to his Creator."—Yule's *Marco Polo*, Bk. III, ch. XVIII.

[1] It is remarkable that the localities above-mentioned should have been those which gave birth to the great Hindu religious reformers, for Sankaráchárya was born near Cranganore, Ramanujacharya near Madras, and Madhvacharya near Udupi. It seems probable, therefore, in the absence of any other testimony, that much of the philosophy of the modern Vedanta sects of Southern India comes from some form of Christianity derived from the Persians. Dr. Burnell, who has made these suggestions, adds:—"Patriotic Hindus will hardly like the notion that their greatest modern philosophers have borrowed from Christianity; but as they cannot give an historical or credible account of the origin of these Vedantist sects, there is more than a strong presumption in its favour, for these doctrines were certainly unknown to India in Vedic or Buddhistic times." On the other hand, M. Barth considers that Islamism introduced by Arab merchants to the western coast may also have indirectly contributed to the promotion of these great religious reforms.—*Rel. of Ind.*, 211.

country. But coming down to a later period, the intimate relations which existed between the Bijapur state and the Portuguese settlements at Goa are well known, and it is from the capture of Goa by Albuquerque in 1508, and the establishment there not long after of the Inquisition, that the foundation of the Roman Catholic church in Southern India dates. There is a statement that a Christian was diván at Vijayanagar in 1445, and through the Bijapur conquest of the north and east of Mysore some Christian influence must have found its way hither, especially in connection with the labours of Francis Xavier, the zealous disciple of Ignatius Loyola, though whether either he or John de Britto visited Mysore is uncertain.

The oldest Christian mission to Mysore was the Roman Catholic, in the middle of the seventeenth century. Little is known of its origin, except that the priests by whom the Canarese mission was founded came from Coimbatore (where a mission had been established by a Jesuit), through the wild tracts of jungle on the borders of the Kávéri, and established congregations, the descendants of whom are still to be found, in a few villages in the south-east. On one spot is pointed out a ruined chapel marked by four large stones, on which are inscriptions, dated 1704, authenticating the gift of the land to "the Sanyásis of Rome."

Before the time of Haidar a church was built in Seringapatam for a Canarese congregation, and another at Kankanhalli, the site of which is known, though there are now no Christians there. Among others, established in the west, was one at Heggadadevankote, of which tradition relates that the priest who built the chapel was beaten to death by the natives. In the east, a Telugu mission was established in 1702, by two French Jesuits, named Boucher and Manduit, from Vellore, who built chapels at Bangalore, Devanhalli, Chik Ballapur and other places. The progress of the missions received severe checks from the suppression of the Jesuits, which stopped the supply of missionaries; and from the fanatical persecution of Tipu, who was determined, if possible, to extirpate Christianity from his dominions.[1] By his orders almost all the churches and chapels were razed to the ground, with two remarkable exceptions—one a small chapel at Gráma

[1] Very different was Haidar's treatment of the missionary Swartz, who was sent by Sir Thomas Rumbold, Governor of Madras, to Seringapatam in 1778 with a message of peace (*see* above, p. 392), and who took the opportunity of preaching wherever he could. The tablet to the memory of Swartz in the church at Fort St. George says:—Hyder Ally Cawn, in the midst of a bloody and vindictive war with the Carnatic, sent orders to his officers, "Permit the Venerable Father Swartz to pass unmolested, and show him respect and kindness, for he is a holy man and means no harm to my government."

near Hassan, which was preserved by a Muhammadan officer, and the other, that in the Fort of Seringapatam, which was protected by the Native Christian troops under their commander Súrappa.

On the fall of Seringapatam, the Abbé Dubois, then in the south, was invited to Seringapatam by the Catholic congregation there. This remarkable man had escaped from one of the fusillades of the French Revolution and sought refuge in India. On entering on mission work he resolved to follow the example illustriously set by de Nobili and Beschi, of adopting the native costume and accommodating himself to the customs and mode of life of the country.

"During the long period," he states, "that I remained amongst the natives, I made it my constant rule to live as they did, conforming exactly in all things to their manners, to their style of living and clothing, and even to most of their prejudices. In this way I became quite familiar with the various tribes that compose the Indian nation, and acquired the confidence of those whose aid was most necessary for the purpose of my work." The influence he thus acquired is testified to by Major Wilks, who says :—"Of the respect which his irreproachable conduct inspires, it may be sufficient to state that, when travelling, on his approach to a village, the house of a Brahman is uniformly cleared for his reception, without interference and generally without communication to the officers of Government, as a spontaneous mark of deference and respect."

He was the founder of the church at Mysore, and of the Christian agricultural community of Sathalli near Hassan, and laboured in the Mysore for twenty-two years.[1] He wrote a well known work on *The People of India*, the manuscript of which was purchased by the British Government. He is also said to have introduced vaccination into the Province.[2] He left India in 1823, the Government paying his passage and giving him a pension.

[1] On his return to France he became the head of the Missions Etrangères in Paris, and died universally respected in 1848.

[2] The death of Chama Raja from small-pox had directed special attention to the recent wonderful discovery of Jenner, and the *Asiatic Annual Register* contains the following interesting extract on the subject from the proceedings of the Madras Government in June 1809 :—

His Lordship in Council being impressed with confidence that the example of a government which is administered on principles so enlightened as those of the government of Mysore, will not fail to have a salutary influence on the minds of the natives of this country, it is deemed proper that the event which has been announced should be made generally known ; and his lordship has been accordingly, under that impression, induced to publish the following extract of a letter from the Dewan of Mysore, stating the circumstances which have attended it :—

Extract of a Letter from the Dewan of Mysore, dated 10th of May.

"The Ranee having determined to celebrate the nuptials of the Maha Raja, deferred the ceremony merely because the young bride had never had the small-pox.

Till 1848 there were only two priests for the whole of Mysore, one at Bangalore and one at Seringapatam. In 1852, Mysore, Coorg, and Wainád, were formed into a Vicariate Apostolic, with head-quarters at Bangalore. In 1887 the hierarchy was proclaimed in India, and the countries above mentioned, with the addition of the taluqs of Hosur (Salem district) and Kollegál (Coimbatore district), were erected into a Bishopric, under the title of the Diocese of Mysore, the head-quarters remaining at Bangalore as before. There are in Bangalore a cathedral for Europeans and Eurasians, and four churches for natives. The out-stations of the diocese are divided into sixteen districts, of which eleven are in the Mysore country, the latter under the ministration of between twenty and thirty European priests, appointed by the Society of Foreign Missions in Paris, and several native priests. There is a large number of schools, both for boys and girls, the most important of the former being St. Joseph's College at Bangalore, teaching up to the B.A. standard, with a staff of ten priests and twenty other masters. Nuns of the order of the Good Shepherd of Angers have a convent at Bangalore and a large girls' school, with branches of both at Mysore. There are also a Magdalen asylum and orphanages, both male and female, in Bangalore and other places. Connected with the Mission is St. Martha's Hospital at Bangalore, an institution on a large scale, with an Eye Infirmary attached; and nuns act as nurses in the Civil hospitals both at Bangalore and Mysore. Agricultural farms, with villages populated chiefly by famine orphans, have been established at Siluvepura (Nelamangala taluq) and Mariapura (Kankanhalli taluq). The Catholic population of Mysore, according to the census of 1891, is 26,518, of whom five per cent. are Europeans, six per cent. Eurasians, and the remainder natives.

London Mission.—The first Protestant mission to the Canarese people seems to have been established at Bellary by the London

—I communicated the cause of the delay to Major Wilks, who recommended an operation invented by some skilful physician of England, and lately introduced into his country, which alleviates the violence of this pernicious disease.—The operation was accordingly performed by the Resident's surgeon, and in consequence six mild pustules appeared on the young bride, who soon after recovered.—The Ranee expressed her extreme astonishment at a remedy so easy and surprising for a malady so deleterious; a remedy which, until now, was unknown in these regions.—She was made very happy thereby, and determined that the nuptials should be celebrated within the year."

His Lordship in Council trusts that the publication of the preceding extract will evince the continued desire with which this government is actuated in the encouragement of the vaccine practice; and, above all, that it will hold forth to all persons in India an interesting and illustrious example, of the safety with which that practice may be extended.

Missionary Society. Thence, in 1820, operations were commenced in Bangalore by the Revs. Laidler and Forbes, and in 1839 extended to Mysore; but in 1850 the latter station was given up. From the commencement, the efforts of the Mission have been devoted to public preaching in Bangalore and the surrounding country, and to literary and educational work. The valuable dictionaries—Carnataca-English, and English-Carnataca,—the only works of the kind then in existence, were the production of the Rev. W. Reeve of this Mission. And the same gentleman, in conjunction with the Revs. J. Hands and W. Campbell, were the translators of the earliest version of the Canarese Bible, for the printing of which Canarese type was first cast, under the direction of Mr. Hands. A new translation was subsequently made, in which the Revs. B. Rice and C. Campbell had a large share, and this has been recently revised by a committee composed of missionaries from various Missions. Native female education is especially indebted to the ladies of this Mission (Mrs. Rice and Mrs. Sewell), who opened the first Canarese girls' schools in 1840.

The agency now includes five European missionaries with one lady missionary and two European lay evangelists, and four native ministers with seven native evangelists. Of the native ministers, one is in charge of the Canarese church formed in the Bangalore Petta, and another of the Tamil church in the Cantonment. The principal out-station is at Chik Ballapur; but there are out-stations at Malur, Anekal, and other places east and north from Bangalore. There are a large number of children under instruction in the Mission schools, both boys and girls. The principal institution is the High School (established in 1847 in Bangalore) and its branches, educating up to the standard of matriculation at the Madras University.

The *Wesleyan Mission* commenced its work in the Mysore country in 1822, but for many years the missionaries laboured only among the Tamil people of the Cantonment of Bangalore. The Canarese Mission was begun in Bangalore in 1835. The following year a lengthened tour through Mysore and Coorg was undertaken by two of the missionaries (Revs. Hodson and Franklin), and suitable stations were selected. Gubbi was made the residence of a missionary in 1837, and a considerable number of populous villages in the neighbourhood were brought under Christian instruction. In 1839 a circuit was established in the city of Mysore, and at various times other circuits in the principal towns, the number now being forty.

The Mission employs thirteen European missionaries and six native ministers, with four European and forty-three native evangelists. There are 3,724 adherents, of whom 1,486 are church members.

The Wesleyans have 125 schools, with 8,756 pupils, and 376 teachers.

Many of the missionaries are employed almost daily in preaching in the open air, as well as on certain days in chapels and school-rooms. Others are engaged in schools. The educational operations of the Mission have been attended with much success, and until the formation of the Government Educational Department in 1857, the English instruction of native youth was entirely in their hands. An institution at Bangalore, established in 1836, was made a first-class institution from 1851, and this High School, with one established at Mysore in 1854, are still carried on, teaching up to the University entrance standard. The Hardwicke College at Mysore is for sons of native Christians.

To the printing establishment of the Mission, set up at Bangalore in 1840, the Canarese people are much indebted. Here, in 1848, were perfected by the Revs. J. Garrett and T. Hodson, in conjunction with Mr. Watt, a type-founder in England, a variety of improvements in Canarese type, resulting in a great saving of time and labour, and by the introduction of spaces between the words promoting facility in reading. A Canarese translation of the Bhagavad Gita was printed in the new type, and subsequently a portable edition of Reeve's Canarese-English Dictionary, edited by the Rev. D. Sanderson of this Mission. The Canarese Bible, in the new translstion of which this gentleman took an important share, and a great number of other useful publications issued from this Press. In 1872 the Mission disposed of the establishment to a private person ; but they have a press at Mysore, since 1890, from which are issued a monthly periodical, called the *Harvest Field*, and a vernacular newspaper.

The *Church of England* is represented by three chaplains, one other clergyman, and one S.P.G. missionary in Bangalore, and one chaplain at Mysore, all under the Bishop of Madras. Their work lies principally among the military and the European residents, but the chaplains in Bangalore visit the Remount Depôt at Hosur, the railway officials at Arsikere, and Europeans at the Kolar gold-fields, while the chaplain of Mysore makes periodical tours to Coorg and to important places in the planting districts. The number of churches on the establishment is six, and the number of persons returned in the census as belonging to the Church of England is 5,366, of whom sixty-five per cent. are Europeans, and twenty-five per cent. Eurasians. There are large schools, the principal being Bishop Cotton's school for boys and girls at Bangalore, and an orphanage.

The *Church of Scotland* has a Kirk and good schools at Bangalore, under the care of a chaplain, who also visits Coorg once a year.

Methodist Episcopal Church.—Since 1880 two American Methodist Episcopal churches have been established in Bangalore, chiefly for the Anglo-Indian and Eurasian population, and the Baldwin schools for boys and girls are important institutions maintained by this Mission. There is also an orphanage at Kolar.

Church of England Zenana Mission.—This has been at work for several years in Bangalore, and the ladies belonging to it visit principally among Musalman families. A large hospital for women has lately been erected in connection with the Mission.

There are also two small communities of *Baptists* and a *Leipzig Lutheran Mission* in Bangalore, and some *Brethren* in Malavalli.

LANGUAGE AND LITERATURE

The distinctive language of Mysore is Kannaḍa—the Karṇáṭaka of the Sanskrit pandits and the Canarese of European writers,[1] the latter name (*see* Hobson Jobson) being the Canarijs of the Portuguese. It is one of the family of South Indian languages,[2] on which the name Dravidian has been bestowed ;[3] but Karṇáṭaka seems to have been a generic term originally applied to both Kannaḍa and Telugu, though now confined to the former. The South Indian languages may therefore be conveniently described as forming two branches of one family—the northern or Karṇáṭaka, and the southern or Dráviḍa, the two being separated by the foot of the Ghat ranges, or a line running along their base from a little north of Mangalore on the western coast, through Coimbatore, to a little north of Madras on the east coast.

The derivation of Karṇáṭa, and its *quasi* adjectival form Karṇáṭaka, is unknown, but it is the only name for a South Indian people used in Sanskrit writers which appears not to be Sanskrit. Dr. Gundert has proposed *kar náḍ*, "the black country," as the original form of Karṇáṭa, in allusion to the black cotton soil of the plateau of the southern Dekhan. Sir Walter Elliot was inclined to connect it with Karna or Karni, as in Sátakarni, the family name of the early rulers before and after the Christian era.[4] Kannaḍa is supposed by the native grammarians to be a *tadbhava* formed from Karṇáṭa. *Kan* itself is said in the Rev. F. Kittel's Dictionary to mean blackness.[5] The name

[1] Telugu is spoken in the east of Mysore ; Tamil by camp-followers and body-servants of Europeans ; it is also the house language of Sri Vaishnava Brahmans, but they can neither read nor write it. Hindustani is the common language in use among Musalmans. The following are the proportions in which these several languages are spoken in Mysore, as stated in the census report of India for 1891 :—Kannaḍa, 73·94 ; Telugu, 15·19 ; Tamil, 3·22 ; Hindustani, 4·73. In Coorg 43·99 per cent. of the population speak Kannaḍa ; in the Madras country, 4·06 ; in Haidarabad, 12·58 ; in the Bombay country, 15·59 ; and in the native states under Bombay, 7·25.

[2] The other chief ones are Telugu or A'ndhra ; and Tamil or Dráviḍa, which is called Arava (ill-sounding) by the Mysoreans, as well as by the Telugu people. Malayálam may be considered an off-shoot from Tamil.

[3] By Dr. Caldwell, who considers Dráviḍa or Tamil as the representative of the group.

[4] *Numismata Orientalia*, "Coins of Southern India," p. 21.

[5] Mr. C. P. Brown, with his usual versatility, has striven to get a clue from the name of Canada, the British Dominion in North America, which, according to him, is a name unknown to the aborigines, and supposed to mean *ca-nada*, "we have

Karṇáṭa occurs as far back as the beginning of the fifth century, in Varáhamihira.[1] It is also used by Alberúni, who wrote in about 1030, as if a general term for the South. For, in describing the limits within which a Brahman might reside, he says: "He is obliged to dwell between the river Sindh in the north and the river Charmanvati (the Chambal) in the south. He is not allowed to cross either of these frontiers so as to enter the country of the Turks or of the Karṇáṭa. Further, he must live between the ocean in the east and west."[2]

The limits within which the Kannaḍa proper is spoken comprise the plateau of Mysore, Coorg, the Nilgiris, Coimbatore, Salem, Bellary, the southern Mahratta country, the west of the Nizam's dominions, and Canara. Wilks thus defines the region, but omitted the last, which is added in brackets.

The northern limits commence near the town of Beder, in lat 18° 45′ N., about 60 miles N.W. from Haidarabad; following the course of the language to the S.E., it is found to be limited by a waving line which nearly touches Adoni, winds to the west of Gutti, skirts the town of Anantapur, and passing exactly through Nandidroog, touches the range of Eastern Ghats; thence, pursuing their southern course to the mountainous pass of Gajalhatti, it continues to follow the abrupt turn caused by the great chasm of the western hills between the towns of Coimbatore, Palachi and Palghat; and sweeping to the N.W., skirts the edges of the precipitous Western Ghats [to a point about opposite Mangalore, whence it follows the coast line to Carwar, and again goes with the Ghats] nearly as far north as the sources of the Krishna; whence following an eastern and afterwards a north-eastern course, it terminates in rather an acute angle near Beder, already described as its northern limit.

The following dialects of Kannaḍa are also spoken in the south:—

Koḍagu, Kuḍagu or Coorg, in the principality of that name;
Tulu or Tuluva, in South Canara;
Tuda or Toda, the language of the people of that name in the Nilgiris;
Kota, spoken by the tribe so called in the Nilgiris;
Baḍaga, the speech of the people bearing that name in the Nilgiris.

nothing!" (*Carn. Chron.*, App. 84). But Webster puts it down as an (American) Indian word, meaning a collection of huts, a village, a town.

In the *Mackenzie MSS.* the derivation of Karṇáṭaka is given as *karṇa aṭaka*, "passing to the ears" of all men, and hence applied to "this honoured and renowned country." The same derivation also appears in the *Vis'vagunádars'a*, a work more than 200 years old.

If a heterogeneous compound (*arisamása*) be permissible—of which there are many examples, and for which there are special rules in the language—Karṇáṭa might perhaps be *karṇa áṭa*, amusing or pleasing to the ear: the "sweet musical Canarese" of Colonel Meadows Taylor.

It is curious that *Kannaḍa-vakki*, or the Kannada bird, is a name of the parrot, which is also called *panḍita-vakki*, or the learned bird.

[1] Caldwell's *Gram. Drav. Lang.*, 34. [2] *Alberuni's India*, by Sachau, II, 134.

The numbers of the races speaking these languages and dialects are estimated at ten millions and a third, according to the statement in the margin, taken from the census returns of 1891.[1]

Kannada or Canarese ...	9,751,885
Kodagu or Coorg	37,218
Tulu	491,728
Toda or Tuda	736
Kota	1,201
Badaga	30,656
	10,313,424

The classical or literary dialect of Kannada is called Paḷa-Gannaḍa or Haḷa-Gannaḍa, that is Ancient or Old Kannaḍa, while the colloquial or modern dialect is called Posa-Gannaḍa or Hosa-Gannaḍa, that is New Kannaḍa. The former differs from the latter, not—as classical Telugu and Malayálam differ from the colloquial dialects of those languages—by containing a larger infusion of Sanskrit derivatives, but by the use of different inflexional terminations. In fact, the mongrel introduction of Sanskrit or Sakkada words in combination with Kannaḍa words is strongly condemned by some of the principal old writers, who denounce the practice as the mark of an imperfect education. Nṛipatunga compares it to an unnatural union with an old woman; Nayasena, to the mixing of *ghi* and oil—one of the most pernicious adulterations of the bazaar; and Nágavarma, to the stringing of pearls along with peppercorns.[2] In those old inscriptions, moreover, which display the most literary skill, we find separate verses in Sanskrit and in Kannaḍa interspersed with one another, according to the opportunities afforded by the theme, in such a way as greatly to heighten the general effect. But though the terms above given may serve to indicate the two main divisions of the language, the classical dialect had already passed through an earlier stage, which may be designated Púrvada Hala-Gannaḍa, the Primitive or Earlier Old Kannaḍa, which Wilks tells us was the language of Banavasi, and therefore belongs to the beginning of the Christian era and the S'átavúhana and Kadamba period. Whether the Buddhist scholars in this part of the country referred to in early Pali writings may have made use of this dialect we have no means of knowing, or whether it was supposed to be exclusively appropriated by the Jainas and so concerned with their Púrvas. Hala-Gannaḍa, as we know it, arose out of this ancient source in about the eighth century, perhaps at the time when the Ráshtrakútas gained the ascendancy over the Chalukyas. It was highly cultivated by a succession of gifted Jaina authors in the centuries following, which form the Augustan age of Kannaḍa literature. A writer of the twelfth

[1] Telugu is spoken by 19,885,137; Tamil by 15,229,759: and Malayálam by 5,428,250: these are the figures of the census of 1891.

[2] For references, *see* my Introduction to the *Karṇáṭaka-Bháshá-Bhúshanam.*

century states that he had composed his work in the new Hosa-Gannada.[1] This, therefore, is the very earliest period to which the rise of the modern form of the language can be assigned, but its general adoption was a good deal later.

There are also certain other terms used in some writers to describe component elements of Kannada, which are not easy to identify. Thus we have mention of *beḷu-Gannaḍa*, or white Kannaḍa; *teḷu-Gannaḍa*, clear Kannaḍa; and *oḷu-Gannaḍa*, local or home Kannaḍa. But the name of universal application for pure Kannaḍa is *achcha-Gannaḍa*; the well of Kannaḍa undefiled, and all the terms are apparently efforts to express composition that was clear and perspicuous, as opposed to a certain obscurity which seems to have been chargeable on the oldest forms of the language.

The written character which is common to Kannaḍa and Telugu, and which spread over the south and was carried even to Java, is derived, through that of the cave inscriptions in the west of the peninsula, from the south As'oka character, or that of all his inscriptions except in the extreme north-west of the Punjab. It belongs to about 250 B.C., prior to which date no specimens of writing have been discovered in India, though there are numerous earlier allusions to writing. This ancient alphabet has lately been satisfactorily proved by Dr. Bühler to be of Semitic origin. It is properly called the *Brahmi lipi*, and was introduced into India probably about 800 B.C.[2] The same scholar has also shown that the north As'oka alphabet, or *Kharoshṭhi*, written from right and left (the use of which is confined to the extreme north-west of the Punjab, though very curiously one word in that character occurs in the As'oka inscriptions found by me in Mysore), is derived from the Aramaic of the Akhæmenian period (the sixth to the fourth century B.C.), and was introduced by the Persian satraps as their official hand. But it was always of secondary importance, the Brahmi being the special Indian mode of writing.[3]

"It may be accepted as a scientific fact," says Mr. Cust, "that all the characters used in the East Indies can sooner or later be traced back to the As'oka inscriptions, and through them to the Phœnician alphabet, and thence backwards to the hieratic ideographs of the old kingdom of Egypt, and thence to the venerable hieroglyphics of the fourth dynasty."[4] The period assigned for the commencement of this dynasty is 3700 B.C.[5]

The Kannaḍa alphabet, as now arranged, corresponds with the Sanskrit, but with some additional characteristic letters. Thus, among

[1] *See Ind. Ant.*, XIV, 14. [2] *Indian Studies*, V, No. 3. [3] *Ind. Ant.*, XXIV, 311.
[4] *Mod. Lang. of the East Indies*, 19. [5] *Academy*, 29 Oct. 1892.

the vowels, while Sanskrit has only long *e* and long *o*, Kannada has both a short and a long form of each of these vowels : *ṛi*, *ṛí*, *lṛi*, *lṛí*, are not Kannaḍa. Of the consonants, according to Nágavarma, the aspirated letters and two sibilants seem not to have belonged to the language originally, namely, *kha*, *gha*, *chha*, *jha*, *ṭha*, *ḍha*, *tha*, *dha*, *pha*, *bha*, *s'a* and *sha*. On the other hand, three consonants not in Sanskrit are pure Kannaḍa, namely, *ḷa*, *ṟa*, and *ḻa*. Of these, only the first, which corresponds with the Vedic *ḷa*, is now in use.[1] The other two are obsolete, though the *ṟa* is still used in Telugu.

The disappearance from Kannaḍa literature, first of the *ḻa* (perhaps about the twelfth century), and subsequently of the *ṟa* (perhaps not till the seventeenth century), serves to some extent to mark definite periods, and is so far a guide in determining the date of manuscript works, especially if in verse, as the requirements of the rhyme will show infallibly what was the original letter used, though it may have been changed in transcribing. Similarly there is what have been called the P and H periods, words now spelt with the latter having formerly appeared with the former, as *posa*, *hosa* ; *Poysala*, *Hoysala* ; &c. The different stages of the language exhibit a change or transition in the forms of most of the letters of the alphabet, especially the pure Kannaḍa ones ; but these again cannot be assigned so exactly to fixed dates as to be sufficient by themselves for chronological purposes.

The relationship of the South Indian languages to the other grand divisions of human speech is thus stated by Dr. Caldwell :—

"The Dravidian languages occupy a position of their own, between the languages of the Indo-European family and those of the Turanian or Scythian group—not quite a midway position, but one considerably nearer the latter than the former. The particulars in which they accord with the Indo-European languages are numerous and remarkable, and some of them are of such a nature that it is impossible to suppose that they have been accidental ; but the relationship to which they testify—in so far as they do testify to any real relationship—appears to me very indefinite as well as very remote. On the other hand, the particulars in which they seem to me to accord with most of the so-called Scythian languages are not only so numerous but are so distinctive and of so essential a nature that they appear to me to amount to what is called a family likeness, and therefore naturally to suggest the idea of a common descent.

"The Scythian family to which on the whole the Dravidian languages may be regarded as most nearly allied is the Finnish or Ugrian, with some special affinities as it appears to the Ostiak branch of that family ; and this supposition derives some confirmation from the fact brought to light by

[1] This is rather quaintly expressed, as follows, in one of the examples in the *S'abdánus'ásana*—Kannaḍigar ḷa-káraman oḍambaṭṭar.

the Behistun tablets that the ancient Scythic race, by which the greater part of Central Asia was peopled prior to the irruption of the Medo-Persians, belonged not to the Turkish, or to the Mongolian, but to the Ugrian stock."

On the other hand the Indo-European relationship of the Dravidian languages has been advocated by Dr. Pope on the ground of "deep-seated and radical affinities between them and the Celtic and Teutonic languages." But Dr. Caldwell observes in reply that "of all the members of the Indo-European family the Celtic is that which appears to have most in common with the Scythian group, and especially with the languages of the Finnish family—languages which may possibly have been widely spoken in Europe previously to the arrival of the Celts."

Professor Max Müller, who has placed Kannaḍa among the Turanian languages, describes them as follows:—

"The most characteristic feature of the Turanian languages is what has been called *agglutination*, or 'gluing together.' This means not only that, in their grammar, pronouns are *glued* to the verbs in order to form the conjugation, or prepositions to substantives in order to form declension; . . . . but that in them the conjugation and declension can still be taken to pieces: and although the terminations have by no means always retained their significative power as independent words, they are felt as modificatory syllables, and as distinct from the roots to which they are appended. In the Aryan languages the modifications of words, comprised under declension and conjugation, were likewise originally expressed by agglutination. But the component parts began soon to coalesce, so as to form one integral word, liable in its turn to phonetic corruption to such an extent that it became impossible after a time to decide which was the root and which the modificatory element. The difference between an Aryan and a Turanian language is somewhat the same as between good and bad mosaic. The Aryan words seem made of one piece, the Turanian words clearly show the sutures and fissures where the small stones are cemented together."

Professor Whitney has the following remarks on the subject:—

"The Dravidian tongues have some peculiar phonetic elements, are richly polysyllabic, of general agglutinative structure, with prefixes only, and very soft and harmonious in their utterance; they are of a very high type of agglutination, like the Finnish and Hungarian . . . . Excepting that they show no trace of the harmonic sequence of vowels, these languages are not in their structure so different from the Scythian that they might not belong to one family with them, if only sufficient correspondences of material were found between the two groups. And some have been ready, though on grounds not to be accepted as sufficient, to declare them related."

The native grammarians, as is well known, deduce all the Indian languages from Sanskrit, through one or other of the Prákrits. Nága-

varma, the earliest Kannada grammarian whose works have been discovered, assumes the existence in India of three-and-a-half mother languages—Samskṛita, Prákṛita, Apabhrams'a and Paisáchika[1]—and of fifty-six daughter languages sprung from them—Drávida, A'ndhra, Karṇáṭaka, &c. But Kannada, in common with the cognate languages of the south, recognizes four classes of words as in current use for literary purposes—*tatsama*, pure Sanskrit words; *tadbhava*, Sanskrit words changed to suit the language; *dés'ya*, indigenous words; and *grámya*, provincialisms. To these a later classification adds *anyadés'ya*, foreign words. Now the *dés'ya* class alone can be taken to represent the pure language of the country, the real Kannada as distinguished from what has been imported from Sanskrit or other sources. And this view is borne out by the fact that the *dés'ya* words not only include all the terms expressive of primitive ideas and common names of things connected with the earlier stages of society, but that they form the bulk of the language, and furnish the model on which terms introduced from other languages are framed. Imported expressions, therefore, though largely used—especially by Brahmans, who venerate Sanskrit, and who are now the principal literary class—for the purpose of imparting a scholarly elegance to their composition, are not essential to the culture of the language.

The first cultivators of the Kannada language for literary purposes were the Jains, and down to the twelfth century we have none but Jaina authors. For about two centuries after, though an occasional Brahman writer appears, they were succeeded principally by Lingáyit and S'aiva authors, and from about the sixteenth century date numerous Brahmanical and Vaishnava works. There were during these later periods some compositions by Jains, but most of the literature of later times originated with the other sects. The leading characteristic of the Jaina earlier works is that they are *champu kávyas*, or poems in a variety of composite metres, interspersed with paragraphs in prose. The Lingáyits principally made use of the *ragaḷe* and *shatpadi* metres of the more modern works, while the most recent compositions are in *yaksha gána* metre, and some in prose only.

The *Ancient Kannada*, as Mr. Kittel says,[2] is quite uniform, and shows an extraordinary amount of polish and refinement. Its principal characteristics are the elaborate and highly artificial *champu* composition,—strict adherence to the use of now more or less disused case- and tense-signs (that towards the end of the period were fixed in grammatical treatises) and to the rules of syntax,—perspicuity resulting therefrom—the use of classical

[1] Perhaps called half a language because spoken only by barbarous tribes.
[2] Preface to *Kannaḍa-English Dictionary*.

Sanskrit (also specifically Jaina) words in their unaltered form whenever desirable or necessary as an aid in composition, and that of a conventionally received number of *tadbhavas* (Sanskrit words changed to suit the tongue of the Kannaḍa people),—the proper distinction between the letters *ḷ*, *ṛ*, *l̤*, *l* and *r*,—alliteration carefully based also on this distinction,—and lastly pleasing euphonic junction of letters. *Mediæval Kannaḍa* began to appear as contained in the poetry of S'aiva and Lingáyit authors. It is, as a rule, written in any one of the *Shaṭpada* metres, is somewhat negligent as to the use of suffixes and the rules of syntax, and therefore occasionally ambiguous, uses a few new suffixes, contains a number of *tadbhavas* not sanctioned by previous authors, has entirely lost the letter *l̤* (using *r* or *ḷ* in its stead), and frequently changes the letter *p* of the present or future verbal suffix and an initial *p* into *h*. The transition to *Modern Kannaḍa*, or the language of the present day, is seen especially in the poetry of the Vaishnavas. Several ancient verbs and nouns fell into disuse, the letter *ṛ* began to be discarded, at least so far as regards its proper position in alliteration, words borrowed from Mahratti and Hindustani came into use, more frequent omission of suffixes took place, etc. The Modern dialect comprises the present Kannaḍa of prose writings and of common conversation. Of these, the first have two branches, one being tales, school-books and letters, and the other, business proceedings (especially those of courts of justice). The first branch differs from the second chiefly in so far as it is more exact in the use of inflexional terminations and less abounding in Hindustani and Mahratti. The language of ordinary conversation (excepting that of the educated classes) may be called a union of the two branches that is less particular in the choice of words, arbitrary about the use of suffixes, and at the same time full of vulgarisms. Many words of the modern dialect also are Sanskrit, especially such as are abstract, religious, or scientific terms. The ancient form of the present tense has been changed, most verbal suffixes have been somewhat altered, a few of the suffixes of nouns and pronouns have ceased to be used, many verbs, nouns and particles have become obsolete, and other verbs and nouns (based on existing roots) have been formed. But in spite of this, of the introduction of much Hindustani and Mahratti, of the lack of refinement, etc., the Modern dialect is essentially one with the Ancient and the Mediæval. It is, however, not uniform, but more or less varies according to localities.

On the history and extent of Kannaḍa literature an immense amount of light has been thrown in recent years. My researches had brought into my hands a number of ancient manuscript works previously unknown, an examination of the references in which, combined with dates in some, enabled the preparation of a provisional chronological table of authors. The results were communicated by me to the Royal Asiatic Society in London in 1882, 1883 and 1890. Later and fuller information was separately published by me in this last year.[1]

[1] In my Introduction to the *Karṇáṭaka-S'abdánus'ásanam*. These researches

The oldest work of which manuscripts have actually been obtained is the *Kavirájamárga* of Nripatunga, which was composed in the ninth century. But we have references which enable us to place the rise of Kannada literature much farther back than this. In fact, there seems reason to believe that Kannada was the earliest to be cultivated of all the South Indian languages. Ancient inscriptions give us the initial information on the subject.

The first notice we have of authorship is in connection with the Ganga kings. Simhanandi, who helped to establish this dynasty, perhaps in the second century, is classed as a great poet ; Mádhava, the second king, ruling in about the third century, is stated to have written a commentary on the law of adoption : and Durvinita, the eighth king, about the fifth century, is said to have had the celebrated Jaina grammarian Pújyapáda for his preceptor, and to have written a commentary on a portion of Bháravi's poem, the Kirátárjuníya. Of course it does not follow that any of these wrote in Kannada. But it becomes not improbable from the fact that Nripatunga, in naming Kannada authors who had preceded him, expressly mentions Durvinita, and as this is an uncommon name, most unlikely to be borne by other persons, it may be concluded that he means the Ganga king.

Again, all the principal poets, in the introductory part of their works, refer to Samantabhadra, Kavipariméshthi and Pújyapáda, invariably in this order, as forming the earliest and most distinguished trio among the authors who preceded them. The first may, according to tradition, be placed in about the second century. The second, whose real name must have been Brahma, and who is probably the one called Kavis'vara among the early Kannada poets named by Nripatunga, must naturally be placed some time between the other two. Pújyapáda we have already seen belongs to about the fifth century.

We next have a very remarkable combination of statements. Bhattákalanka, in his great grammar of the language, mentions the Chúdámani, a work of no less than 96,000 verses, in terms of the highest praise, as if it were the most important production in early Kannada literature. Inscriptions[1] further inform us that its author was S'rívarddha, also called the Tumbulúr-áchárya, and that it displayed all the graces of composition. Unfortunately no trace of the work has as yet been discovered. The most interesting statement of all, however, is

have been followed up with real interest by Mr. R. Narasimhachári, M.A., now Kannada Translator to the Education Department, and he has placed at my disposal some notes prepared by him on the subject. I am glad, therefore, to be able to incorporate the additional information thus supplied.

[1] Sravan Belgola, No. 54 ; Mysore District, T.N. 105.

that S'rívarddha's eloquence was praised in a couplet by the celebrated Sanskrit author Daṇḍi, who is assigned by the principal Orientalists to the sixth century. Hence S'rívarddha must have lived at or before that time. Moreover, a work of such extent as his could neither have been produced nor required unless there had pre-existed a considerable literature in Kannaḍa and a wide-spread culture of the language. These considerations dispose of any objections that might be raised against the dates previously given as being too early.

We next have mention of a Ravikírti in 634, whose fame equalled that of Kálidása and Bháravi. Nripatunga also names as his predecessors in Kannaḍa composition, besides those given above, Vimala, Udaya, Nágárjuna, Jayabandhu, S'rívijaya, Chandra, and Lókapála. Of these, Vimala was probably Vimalachandra, whose disciple Vádíràja was *guru* to the Ganga king Ráchamalla. S'rívijaya was praised by Vádiràja, and therefore came before him. Chandra may be the Chandrabhaṭṭa mentioned by some later authors.

We now come to Nripatunga, and a more certain period, amply illustrated by works that are extant. Nripatunga, or Amoghavarsha, was a Ráshtrakúta king, who, after an unusually long reign, from 814 to 877, voluntarily abdicated the throne. He evidently took a great interest in the Kannaḍa country, people and language. In his work called Kavirájamárga,[1] the subject of which is *alankára* (rhetoric or elegant composition), he makes some interesting statements. "The region which extends from the Kávéri as far as the Gódávari," he says, "is the country in which Kannaḍa is spoken, the most beautiful land in the circle of the earth. In the central parts thereof, situated between Kisuvoḷal, the famous great city of Kopaṇa, Puligere, and the justly celebrated Onkunda, is found the pith (*tiruḷ*) of high Kannaḍa." Of these places, the first is the modern Paṭṭadakal in Kaladgi district, Kopaṇa is probably Kopal in the south-west of the Nizam's Dominions, Puligere is Lakshmes'vara in the Miraj State, and Onkunda, perhaps Vakkunda, in Belgaum district. The region indicated, owing to the numerous vicissitudes through which it has passed, is far from being regarded at the present day as the seat of the purest Kannaḍa, which is more probably to be found in Mysore. Nripatunga also praises the Kannaḍa people as having by nature an ear for poetry, and as speaking in a rhythmical manner, though quite unstudied. He states Kannaḍa, moreover, to be a much more difficult language in which to compose poetry than either Sakkada (Sanskrit) or Págada (Prákrit).

Gunabhadra, preceptor of Nripatunga's son Krishna while yet yuva-

[1] Now going through the press, under my direction, as well as the Pampa Bhárata (*see* next page).

rája, is mentioned by later writers; but the next poet whose works we actually have is Pampa, who wrote the Ádi Purána and the Vikramárjuna-vijaya in 941. The latter is also known as the Pampa Bhárata. In it, Pampa's patron, a Chálukya prince named Arikésari, is identified with Arjuna and made the hero. These two works seem to have given a great impetus to Kannada composition. "In the pithy (*tiruḷa*) Kannada[1] of Puligere,[1] the royal city," says the poet, "did he write, naturally and without effort; thus his Bhárata and Ádi Purána put all former poems under their feet. . He completed the one in six months and the other in three months, . . and they were read by all classes of people, by servants as well as by the greatest poets." Pampa was the son of a Brahman from the Vengi country who had embraced Jainism.

It is impossible in this place to do more than briefly name some of the principal Kannada writers who followed, and their chief works, with dates where they are known.

In the tenth century we have Asaga; Ponna, author of the S'ánti Purána, who claims to be superior to all other poets in command of both Kannada and Sakkada, excelling a hundred-fold Asaga in the former and Kálidása in the latter, while in style he was fourfold both combined: he received a title from the Ráshṭrakúṭa king Krishna (probably Krishna or Kannara Akálavarsha, ruling 939 to 968). He was a Brahman who had become a Jaina. In 978 we have Chámunḍa Ráya, author of the Chámunḍa Ráya Purána, an excellent specimen of prose composition of that period. In 993 came Ranna, author of the Ajita Purána (which he was emulous should endure as long as the Ádi Purána and S'ánti Purána above mentioned) and of Sáhasa-Bhíma-vijaya, also called Gadá-yuddha,[2] the hero of which is the Chálukya prince Satyás'raya. He was of the bangle-sellers' caste and received a title from the Chálukya king Tailapa (973 to 997). At the same time as the two preceding we have Nágavarma, all three having had as their preceptor Ajitasena, *guru* of the Ganga king Ráchamalla. This Nágavarma, apparently a younger brother of Chámunda Ráya, was the author of Chhandómbudhi (the first work and chief authority in the language on prosody),[3] and of Kádambari,[4] a close version of Bána's work in Sanskrit. There is reason to suppose that he was not strictly orthodox as a Jain. His brother, by the erection of the colossal statue of Gomata at S'ravana Belgola, and by reputation, was one of the greatest upholders of the Jaina faith.

[1] *See* above, under Nripatunga.

[2] Lately published in Mysore.

[3] Published by Mr. Kittel at Mangalore in 1875, under the title of *Nágavarma's Canarese Prosody*.

[4] Published in Mysore, by B. Mallappa, Headmaster of the Maharaja's Kannada School.

In the eleventh century may perhaps be placed Gunavarma, author of a Harivams'a, and Chandraraja, author of Madana-tilaka. The latter would appear to be the first Brahman who composed a work in Kannaḍa. His patron was Recha (or Mácha), a general under the Chálukya prince Jayasimha. There are not many names in this century, probably owing to the check caused by the Chola invasions.

The twelfth century, when Mysore was restored to Kannaḍa rule under the Hoysalas, seems to have been specially prolific in Kannaḍa works of high excellence. Nayasena, author of Dharmámrita; Nágachandra or Abhinava Pampa, author of Rámachandra Charita Puráṇa (also known as the Pampa Rámáyana),[1] and of Mallinátha Puráṇa[2]; Aggala, author of Chandraprabha Puráṇa; Karṇapárya, author of Neminátha Puráṇa; Nemichandra, author of a romance called Líláyati, and of another Neminátha Puráṇa, called Ardha Nemi from its being only half finished; Vrittavilása, author of Dharmaparíkshe and S'astrasára; and Sujanóttamsa, who wrote a panegyric on Gomata—were all Jains, as well as Nágavarma (apparently a different person from the one before mentioned). He is distinguished as Abhinava S'arvavarma, and was the author of several important works on the language, namely, Kávyávalókana, a work on rhetoric, the first part of which is a brief grammar, called S'abda-smriti, in Kannaḍa verse; Karṇáṭaka Bhashá Bhúshana,[3] a grammar in Sanskrit sútras; and Vastukos'a, a nighaṇṭu or dictionary, composed in many artificial metres, giving the meanings of Sanskrit words used in Kannaḍa. He appears to have been a teacher in the capital of Jagadekamalla (? the Chálukya king of 1138 to 1150), and also a tutor of Janna (*see below*).

But there were writers of other faiths besides at this time. Thus, the Brahmans Rudrabhaṭṭa, author of Jagannátha Vijaya,[4] who seems to have been under the patronage of Chandramauli, minister of the Hoysala king Víra Ballála (1172 to 1219); and Káma, author of S'ringára-ratnákara, may come here. Lingáyit poets, too, now made their appearance:—Harihara, author of Girijá-kalyána; Raghavánka, his nephew, author of Haris'chandra-kávya; and Kere Padmarasa, author of Díkshábódhe.

In the thirteenth century we find a group of excellent Jaina poets, all closely related to one another, patronized by the Yádava and Hoysala kings. Sumanóbána, priest of the Yádava capital, and described as a poet; his son Janna, author of Yas'ódhara-charita in 1217, and of Anantanátha Puráṇa in 1230, patronized by Narasimha II., and honoured with a title by the Hoysala king Víra Ballála;

[1] Published by me in 1892.
[2] Published in Mysore.
[3] Published by me in 1884.
[4] Often published.

Sumanóbána's son-in-law, Mallikárjuna, author of Súkta-sudhárnava, written for the Hoysala king Sómés'vara; his son, Kés'irája, author of the S'abdamaṇidarpaṇa, a standard work on the grammar of the language.[1] Other Jaina poets of this period were Kumudéndu, author of the Kumudéndu Rámáyaṇa; Bandhuvarma, author of Harivams'ábhyudaya and Jívasambódhane; Kamaḷabhava, author of S'ántís'vara Puráṇa; Anḍayya, author of Kabbigara-káva,[2] a work of special interest from its being written in Achcha-Kannaḍa or pure Kannaḍa, in response to a challenge that this was virtually impossible; Gunavarma, author of Pushpadanta Puráṇa; Sálva, author of Rasaratnákara, a work on dramatic composition; Mangarasa, author of Khagéndra-maṇidarpaṇa; and Máyaṇa, author of Tripura-dahana. This latter seems to be the first work written in the *sángatya* metre, intended to be sung to the accompaniment of some musical instrument.

Of other authors of this period may be named Chauṇḍarája, a Brahman, author of Abhinava Das'akumára-charita, a Kannaḍa metrical version of Danḍi's work in Sanskrit. The Lingáyit poets were Kumára Padmarasa, author of Sánanda-charitra; Pálkurike Sóma, author of S'íla-sampádane and other works; and Sómarája, author of Udbhaṭa-kávya.

From the fourteenth century Jaina poets are more rarely met with. But the following belong to that time:—Madhura, author of Dharmanátha Puráṇa; Abhinava Mangarája, author of Mangarája Nighanṭu, a vocabulary in verse, giving Kannaḍa meanings of Sanskrit words; and perhaps Kavi Bomma, author of Chaturásya Nighanṭu. Among Lingáyits were Bhíma Kavi, author of the Basava Puráṇa in 1369; and Singirája, author of Mala Basava Charitra.

The fifteenth century produced, among others, the Lingáyit writers—Linga, author of Kabbigara Kaipiḍi; Tónṭadárya, author of Karṇáṭaka S'abdamanjari, both vocabularies; Chámarasa, author of Prabhulingalíle; and I's'varakavi, author of Kavijihvábandhane, a work on prosody. Bháskarakavi, a Jain, wrote Jívandhara-charite.

But the authors now become too numerous to allow of more than a few of the principal ones being named. Among Jainas there were in the sixteenth century:—Mangarasa, author of Nemi Jines'a sángatya, Samyaktva-kaumudi, &c.; Linga, author of Chola Rája sángatya; Nanjunda, author of Kumára Ráma kathe; Ratnakarárya, author of Trilóka-s'ataka; Bommarasa, author of Sanatkumára-shatpadi; S'rutakírti, author of Vijayakumári-kathe. Among Lingáyits were:—Bommarasa, author of Saundara Puráṇa; Basavánka, author of

[1] First published at Bangalore in 1868 by Mr. Garrett: subsequently at Mangalore in 1872 by Mr. Kittel.

[2] Published at Mysore.

Udbhaṭadeva Charitre; Sadás'iva yógi, author of Rámanátha-vilása; Depa, author of Sobagina Sóne; Mallanárya, author of Bháva-chintáratna; Virúpáksha-paṇḍita, author of Chenna Basava Puráṇa; Adris'appa, author of Prauḍha Ráya Charitra; and others. Among Brahmans were:—Kumára Vyása, who, in the reign of Krishna Ráya of Vijayanagar, translated into Kannaḍa verse the first ten parvas of the Mahábhárata; Timmanna, who completed the work; Purandara and Kanaka, authors of Vaishnava Dásarapadas, &c.; Kumára Válmiki, author of the Torave Rámáyana, a Kannaḍa version of Válmiki's work; Viṭhala, author of a Kannaḍa rendering of the Bhágavata Puráṇa; and others.

The seventeenth century saw the production of several works which are of the first importance in Kannaḍa literature. In 1604 was completed by the Jaina author Bhaṭṭákalanka Deva, his great work on Kannaḍa grammar, the Karṇáṭaka S'abdánus'ásanam,[1] an exhaustive treatise in Sanskrit sútras, after the manner of Pánini, with extensive commentaries, emulating the Mahábháshya of Patanjali. No other South Indian language possesses such a work. In 1657 appeared the Rájas'ékhara Vilása, a poem by the Lingáyit author Shaḍakshara Deva. This divides with the Jaimini Bhárata (*see below*) the honour of being the most highly esteemed poem in Kannaḍa. The same author wrote S'abara S'ankara Vilása, Vrishabhendra-vijaya, and other poems.

A remarkable development of Kannaḍa literature also took place in the latter part of the century, at Mysore, under the rule of Chikka Deva Rája (1672 to 1704). Not only was he an author himself, but numerous works of great excellence, some in imitation of the old poets, were composed by his two ministers, Tirumalárya and Chikkópádhyáya, or Alasingárya. The former wrote Apratimavíra Charita, a work on rhetoric; Chikadevarája Vijaya, a champu work, describing the king's conquests; Chikadevarája-vams'ávali, a prose work on the king's ancestors, &c. The latter wrote about thirty works, champus, sángatya and prose. Among the more important were Vishnu Puráṇa, Kamalá-chala-mahátmya, and Sátvikabrahmavidyavilása, on the Vis'ishṭádvaita philosophy. Singarárya, Tirumalárya's brother, wrote a play called Mitravinda Govinda.[2] There was also a poetess at the court, called Honnamma, who wrote Hadibadeyadharma, the duties of a faithful wife.

Early in the eighteenth century the Brahman poet Lakshmís'a produced his Jaimini Bhárata, which is probably the most popular poem in the Kannaḍa language, being more easily understood than its

[1] Published by me in 1890.

[2] This and several of the works of these three authors have been published at Mysore.

rival above named. The numerous authors of this period do not otherwise call for special notice; and the troublous times of Mahratta invasions and Muhammadan usurpation were not favourable to the progress of literature.

At a later period the *yakshagána* stories gained popularity. These are generally based on episodes in the Mahábhárata or puránic works, and are dramatic in form, written for recitation on the native stage and suited for performance to rustic audiences. The number issued is very great, and many are attributed to S'ántappa, a Brahman of Gersappe. In some parts of South Mysore almost every important village has periodical performances of one of these plays, the actors being some of the villagers themselves, trained for the purpose; of course female parts are taken by boys. I have sometimes witnessed excellent acting in such performances, primitive as the accessories are. In other parts of the country, to the north, parties of professional actors travel about, performing in the villages. They generally have a woman with them who takes the part of the heroine. But under the late Mahárája encouragement was given to the production of a higher style of drama, to be placed on the stage like European plays. A good deal of success has rewarded some of the companies that adopted the idea. The principal poet at the court was the late Basavappa S'ástri, who produced excellent Kannaḍa adaptations of Kálidása's Sákuntala and other Sanskrit dramas. Others have followed in the same path, and a number of Shakespeare's plays have also been made the foundation of Kannaḍa dramas with Hindu names. Praiseworthy as these efforts are, however, they can never have that hold on the national mind, or tend so much to the revival of Kannaḍa learning, as a careful study of the ancient spontaneously-produced original works of the country, recently brought to light. Sectarian animosity against the Jains was perhaps at the bottom of their neglect heretofore, but such feelings are giving way, as they are bound to do, now that the linguistic excellence of the old works is recognized.

A college has been formed at Mysore specially for the study of Kannaḍa literature to a high standard, and prizes are awarded to pandits who distinguish themselves in the language at the Palace examinations. A few young men have combined to publish a monthly periodical, called the *Kávya-manjari*, in which ancient works recently discovered are published with careful editing.[1] A learned class with knowledge and appreciation of the language are thus arising, who are not ashamed to extend their study beyond the orthodox confines of Sanskrit, high as

[1] Jaina works are being published in the *Budhajanamanoranjini* in Kannaḍa, and the *Kávyámbudhi* in Sanskrit.

the reputation of scholarship in that language must ever stand. But as regards the great mass of the population, the works that issue from the presses and find most sale, next to school books and Yakshagána plays, are republications of former works, sectarian religious books, works on astrology, omens, and horoscopy, established collections of tales, and such like. Few are new works of literary importance.

An Oriental Library has been established in the Victoria Jubilee Institute at Mysore, from which some unedited Sanskrit texts are being published, and where has been deposited a large collection of rare Kannada works in manuscript, copied under my direction during many years past.

The Hindu manuscripts are on the two kinds of writing-material, exclusively employed till about 200 years ago, and still used by the learned. They are the *óle* and the *kaḍata*. The former was mostly used for literary works, the latter for accounts and historical records.

The *óle* is the leaf of the *táḷa* or palmyra (*borassus flabelliformis*). The material, as used for manuscripts, is stiff and flexible but brittle, of a yellowish-brown colour, from 1 foot to 2 feet long, and from 1 inch to $1\frac{1}{2}$ inches wide. It is written on lengthwise, with an iron style, the characters being afterwards brought out by rubbing in black colouring matter. The bundle of leaves forming a work are all of the same size, and strung on thin cord, which passes through holes punched in the middle towards either extremity. A piece of wood, the size of the leaf, is placed at top and bottom, and tied down with the string, forming a binding for protection. The writing is often very minute and close together, with no break but a perpendicular stroke between one part and another. Such being the materials, the wonder is that so many works of antiquity have survived to this day.

The *kaḍata* is composed of cloth covered with a composition of charcoal and gum. It presents a black surface, which is written on like a slate, with a piece of baḷapam or pot stone. The book is of one piece, folded in and out, and is from 8 inches to 1 foot wide, and 12 to 18 feet long. A piece of wood, the size of the book, is attached at either end like a binding, and the whole is put into a case of silk or cotton, or simply tied up with a bit of string. The writing can be rubbed out and renewed at will. The kaḍata is still used by merchants and shop-keepers for accounts. Though liable to be expunged, it is perhaps a more durable record and material than the best writing on the best paper.

The introduction of paper is due to the Muhammadans, and certain coarse kinds were till lately made in the country, resembling the whitey-brown unglazed paper used in England for packets.

Of the Muhammadan literature of Mysore there is not much

apparently to be said. Some of the Persian annals of the reigns of Haidar and Tipu are of interest, and translations into English, by Colonel W. Miles, have been published for the Oriental Translation Fund, with dedication to the Queen.

A few words may be added on what has been done for Kannaḍa literature by Europeans. The first undertaking was the *English-Carnataca Dictionary* of the Rev. W. Reeve, completed in 1817, and published in 1824 with a dedication to Sir Thomas Munro, Governor of Madras. Meanwhile, in 1820, Mr. McKerrell, Judge of Canara, and Carnataca Translator to Government, published his *Carnataca Grammar*, commenced in 1809, in the preparation of which he consulted the S'abdamaṇidarpaṇa. His work was dedicated to the King (George IV). In 1832 appeared Reeve's *Carnataca-English Dictionary*, commenced in 1817, a valuable work, for long the only one of its kind, though not up to the scholarship of the present day. It was reprinted at Bangalore, in portable form, in 1858, edited by the Rev. D. Sanderson of the Wesleyan Mission. But the work having long been out of print, the compilation of a new one was undertaken by the Rev. F. Kittel of the Basel Mission, aided by the India Office and the Mysore Government. The result has been the *Kannaḍa-English Dictionary*, published at Mangalore in 1894, a bulky volume of 1752 pages. It is a work of great labour, and may now be considered the standard dictionary of the language.

Before 1850, the publication had been commenced, under the superintendence of the Revs. Dr. Moegling and Weigle of the Basel Mission at Mangalore, and at the expense of Mr. Casamaijor, former Resident of Mysore, of a series of works to form a *Bibliotheca Carnatica*. The following appeared :—*Basava Purana*, *Channa Basava Purana*, *Jaimini Bhárata*, *Rámáyana* (2 *kánḍas*), *Rávana Digvijaya*, *Dásarapada*, and *Rájendranáme*, a Coorg History. A grammar compiled by Krishnamáchári, College Munshi, was also published about the same time at Madras, called *Hosa-Gannaḍa-nuḍi-gannaḍi*.[1]

For the introduction of printing, Canarese is indebted to the missionaries at Bellary who translated the Holy Scriptures, as before related. The first complete translation of the Bible was finished in 1827, after sixteen years had been spent on the work. A similar period, from 1843 to 1859, was subsequently devoted to revising the

[1] All these works were lithographed, and in the *Rájendranáme* an attempt was made to overcome the mechanical difficulty presented in subscript letters by placing the compound letters side by side on the line, a system which made the reading very difficult, if not impossible, and to natives was incomprehensible, being opposed to the immemorial and established practice of the language.

translation.[1] The study of the language especially with a view to this undertaking, directed attention to such of the indigenous literature as was accessible; and the effort to produce so voluminous a work in portable form, was the means of effecting the improvements in typography previously referred to.

The wants of schools and universities, and of officers required to pass an examination in the language, have been the principal motives for the publication of a variety of useful works, some of the educational books in no small numbers. But, besides the publications in connection with the *Bibliotheca Carnatica*, the most valuable original literary works that have been published have been indicated in the footnotes above. It may be added that the collections of the numerous inscriptions throughout the country (now going through the press under my direction)[2] are invaluable as adjuncts to the study of the language. Though their primary importance is for historical purposes, they afford perfect models of the composition of the various periods to which they belong. Many are elaborate compositions by scholars of repute, and we have in them not alone specimens of the written characters of the time, but the exact spelling and arrangement, free from the errors, conscious or unconscious, that always creep into manuscripts copied from hand to hand, however carefully made.

Much might be added regarding the European works, some of great excellence, which Mysore has given rise to, such as *Wilks' History*, *Buchanan's Travels*, &c., not to mention the military works upon the wars with Mysore. Here Sir Walter Scott laid the scene of one of the Waverley novels—the *Surgeon's Daughter*.[3] Colonel Meadows Taylor's novel called *Tippoo Sultaun* contains masterly sketches of the times; and several lifelike and graphic sketches of the Canarese people may be found in his other Indian novels. But it seems unnecessary to enter farther upon this subject, except to add that a volume on *Haidar Ali and Tipu Sultan*, by Mr. Bowring, is included in the recent Rulers of India series, edited by Sir W. W. Hunter.

[1] Another revision has been completed in the last few years.

[2] There have already been issued two volumes—*Inscriptions at S'ravaṇa Belgola*, in 1889; and *Inscriptions in the Mysore District*, Part I., in 1894.

[3] There is a memorial tablet in Trinity Church, Bangalore, to the great novelist's eldest son, Sir Walter Scott, who was a cavalry officer here, and died on his way home.

ART AND INDUSTRY

FINE ARTS

The monuments of sculpture, engraving, and architecture in Mysore have not been surpassed by those of any country in India. Before describing the masterpieces of design and execution, which remain and continue to extort admiration to this day, a few words may be devoted to the ruder megalithic structures which preceded them, and which abound in such numbers in all parts of the country.

Stone monuments.—The earliest, probably, in point of time are the dolmens,[1] consisting of enormous massive slabs of unhewn stone, supported on naturally formed slabs or columns of stone. The most numerous class of dolmens found in Mysore are stone chambers or cists, also called kistvaens. They consist sometimes of only three or four, but generally of six or more stones, set up edgeways and covered by a capstone. The stone chambers or cells, which are usually not more than 2 or 3 feet high, may often be seen in great numbers near Sivite temples, arranged side by side, as if forming the boundary of a yard or enclosure towards which their open ends face, and seem to be erections of the Kurubar. They are sometimes isolated, and of larger size, containing rude sculptures similar to those of *vírakal* and *mástikal*, to be mentioned further on.

The kistvaens are generally found below the surface of the soil, their site being indicated by one or more stone circles or cromlechs[2] above. They are thus described by Major Cole, who explored many in Mysore and Coorg.[3] "They are not excavations, but actual structures, consisting of a large flagstone of granite at the bottom, with four similar slabs, all hewn and made to fit, forming a stone cist, the capstone being a large unhewn block of granite. This block is generally found in the centre of the circle of stones, with the top just visible above the surface, or about a foot below it. The stones forming the circle are buried from 1 to 3 feet below the surface, and project above from 1 to 2 feet." The stone forming the eastern end of the cist generally has a circular opening towards the top, of about 1 foot 8 inches diameter, and

[1] From the Celtic *dol* or *daul*, table, and *men* or *maen*, stone.
[2] From *crom*, a circle or curved, and *lech*, stone.
[3] *Ind. Ant.*, II, 88. *See* also a paper by Captain Mackenzie, *ib.*, II, 7.

the capstone projects over this entrance from 1 to 2 feet. The interior dimensions of the chambers vary.[1]

The contents of the kistvaens consist, in nearly every case, of vessels of pottery placed against the western side facing the orifice, both kists and vessels being completely filled with earth, well rammed in by the action probably of time and water. The vessels are of various sizes and forms, often elegantly shaped. They are usually of red or black clay, well burnt and polished, and decorated with beading and lines in different patterns.[2] Sometimes the stone circles or cromlechs have been found on tumuli, or independent and not surrounding a kistvaen. Within them have been found, on digging, the remnants of vessels apparently buried without the stone receptacle. In one case (in Coorg) the vessels were found buried at the foot of a large stone, opposite an entrance to the circle, formed of two upright slabs arched above.

These curious structures,—dolmens, cromlechs, kistvaens, etc.—it is now known, are found throughout every part of the globe, in some countries in extraordinary numbers. In India they most abound in the west.[3] That they are memorials of a primeval race there can be no doubt, and it is generally held that they are either Turanian or Celtic. In the south of India they are often called by the natives *Pándu kolis*,[4] and are supposed to have been the residences of a pigmy race.[5] Others call them tombs of the Pándavas. That their object was sepulchral scarcely admits of question, and the vessels in them were probably cinerary urns for the preservation of ashes or other remains of the dead, while the open vases and dishes contained either offerings to the *manes* or food for the dead, introduced through the opening in the end, which may have been left for this purpose.

It is curious that in Molkalmuru taluq, the similar structures on a

[1] Of those opened, one was 11 feet long, 5 feet 8 inches broad, and 4 feet high. Another was only 6 by 4, but 4 feet high. One capstone measured 12 feet 3 inches by 8 feet, and was 1 foot thick; another was 11 feet 4 inches by 10 feet 2 inches, and varied in thickness from 1 foot 4 inches to 1 foot 8 inches.

[2] One of the finest specimens found was a vase standing 2 feet 9 inches high, and 5 feet 11 inches in circumference at the centre. The mouth was 3 feet 6 inches in circumference, and the neck of the vase 2 feet 10½ inches round.

[3] A map to illustrate their distribution will be found at the end of Mr. Fergusson's book, *Rude Stone Monuments*.

[4] But may not this term be really of European origin, suggested by the French name, which some of the early Jesuit priests may have used to designate them? For Wace, an Anglo-Norman poet, says of Stonehenge and similar structures:—

> Stanhenges ont nom en Englois,
> Pieres pandues en Francois.—Sir J. LUBBOCK, *Prehist. Times*, 122.

[5] With regard to this, again, it is singular to note, as there may be the same underlying idea, that "the Latin *manes* meant probably in the beginning no more than the Little Ones, the Small Folk."—Max Müller, *Sc. Rel.*, 366.

somewhat smaller scale are called *Móryara mane*, houses of the Moryas or Mauryas, as if affording a clue to their period, and I find that this is also the name given to them by the Badagas on the Nilagiri hills.[1] There are also stone circles, single or in groups, on high waste places, which are called *Mórya dinne*, mounds of the Moryas. These occur in the Molkalmuru, Challakeri, and Chitaldroog taluqs. I have opened several of the circles, but they contain nothing, and are evidently foundations for something above ground and not intended to cover excavations underground. They may possibly mark the sites of Bedar encampments, as the Bedar commonly erect circular mud huts, and their temple is a circular hut on a raised platform, with a wooden stake in the middle for the god.

Menhirs[2] or free standing big stones, have been commonly erected for ages to mark particular spots. The *karu kallu* erected at the foundation of a village have been previously referred to. Others called *yelle kallu* are boundary stones, and are often rudely carved either with the Saiva symbol of the *linga*, or the Vaishnava symbols of the *s'ankha* and *chakra*, the conch and discus, according to the creed of the erector.

A more interesting class are the *másti-kallu* and *víra-kallu*. The former, properly *mahá-sati-kallu*, are supposed to mark the spots where widows became *sati* by burning with the dead bodies of their husbands: the latter where some hero fell in battle, or otherwise came by his death. The másti-kal are slabs about 4 feet high, bearing the sculpture of a pillar or post with a human arm projecting from it. The hand is outstretched and pointing upwards, the fingers being separated, with often a lime in the hollow between the thumb and forefinger. Under this is a rude sculpture of the man and his wife. These stones are very common, principally, I think, in the west of Mysore.

The *víra-kal* or hero stones are often elaborately sculptured. The slab is generally divided into three compartments, each containing sculpture in relief. The lowest represents the scene in which the hero fell; the middle one his triumphant ascent to the world of gods, generally borne along in a car surrounded by *apsaras* or celestial nymphs; the top one shows the hero in the upper world, seated in the immediate presence of the divinity. Between the scenes are sometimes a few lines of inscription, giving the name of the hero, the date of the event, etc. The lower tableaux are of much interest, as illustrating scenes from life, and showing the costumes, weapons, and other features of the time in which they were erected.

[1] Grigg's *Manual of the Nilagiri District*, 242.

[2] *Men*, stone, and *hir*, tall or big. Minar and minaret are said to be derived from the same root.

Sculpture.—The most remarkable specimen of sculpture in Mysore, if not in India, is the colossal Jain statue of Gomaṭes'vara at Sravana Belgola. It was erected in about 983, and is 57 feet in height. It is in the simple human form, nude, and stands at the summit of a rocky hill, having no support above the thighs. The sculptor's name was possibly Ariṭṭó Némi.

"The images of this king or Jain saint," Mr. Fergusson remarks, "are among the most remarkable works of native art in the south of India. Three of them are known, and have long been known, to Europeans, and it is doubtful if any more exist.[1] They are too remarkable objects not to attract the attention of even the most indifferent Saxon. That at Sravan Belgola attracted the attention of the late Duke of Wellington, when as Sir Arthur Wellesley he commanded a division at the siege of Seringapatam. He, like all those who followed him, was astonished at the amount of labour such a work must have entailed, and puzzled to know whether it was a part of the hill or had been moved to the spot where it now stands. The former is the more probable theory. The hill, called Indra-giri, is one mass of granite, about 400 feet in height, and probably had a mass or Tor standing on its summit, either a part of the subjacent mass or lying on it. This the Jains undertook to fashion into a statue 70 feet 3 inches in height, and have achieved it with marvellous success. The task of carving a rock standing in its place the Hindu mind never would have shrunk from had it even been twice the size; but to move such a mass up the steep smooth side of the hill seems a labour beyond their power, even with all their skill in concentrating masses of men on a single point. Whether, however, the rock was found *in situ* or was moved, nothing grander or more imposing exists anywhere out of Egypt, and even there no known statue surpasses it in height, though it must be confessed they do excel it in the perfection of art they exhibit.[2]

Another excellent example of sculpture is the fine group of Sala and the tiger, which is placed in a conspicuous position on a projection immediately in front of the *vimána*, or tower, of many temples erected under the Hoysalas. The incident is conventionally treated, and with many variations in details. But generally there is a figure of Sala on

[1] The three are the one at Sravan Belgola, 70 feet 3 inches high (according to some, but by actual measurement 57 feet); one at Kárkala, erected in 1431, said to be 41 feet 5 inches in height; and one at Yénur, erected in 1603, about 37 feet high. They are engraved in Moor's *Pantheon*, Buchanan's *Travels* and the *Indian Antiquary*. But the best representation of the Sravana Belgola statue is the frontispiece of my *Inscriptions at Sravana Belgola*. The statue of the Sun, called the Colossus of Rhodes, one of the seven wonders of the ancient world, was 105 feet high, but this was of bronze. It was erected in the third century B.C., but was thrown down and broken by an earthquake fifty-six years after. The German statue of Hermann or Herminius, completed in 1875, is 90 feet high to the point of the raised sword, and also of metal.

[2] For description, *see* Vol. II, under *Sravan Belgola*.

one knee, guarding himself with a shield, and plunging a dagger into a ferocious tiger of mythological breed, which is springing on him. These groups of statuary, says Sir Walter Elliot, "are of considerable merit and are the only instances I have met with of free sculpture."[1] Unfortunately it is difficult to find one that is not mutilated.

The sculpture of Mysore is otherwise principally exemplified in two classes of monuments, the decoration of buildings, especially temples, and the víra-kal. Both draw their subjects largely from Hindu mythology, and to this the carvings on temples are entirely subordinated, but the pediment is sometimes elaborately covered with scenes from the epic poems, the illustrations being more or less drawn from life; and in the lower compartment of víra-kal, as before remarked, events are portrayed pretty nearly as they must have occurred. The latter class of sculpture is perhaps less varied and of ruder execution than that of temples, but some specimens which have been well preserved are equal to any in the former. The scenes from the lives of Bhadrabáhu and Chandra Gupta at Sravana Belgola are unique of their kind, the work of Dásója.

Architecture.—The oldest architecture of which any specimens exist in India is Buddhist, of the third century B.C., and Mr. Fergusson argues that it was developed from the stone monuments above referred to, as it is "essentially tumular, circular, and external, thus possessing the three great characteristics of all the so-called Druidical remains." The wonderfully carved rail of the Amarávati *stúpa* and the so-called *rathas* of Mámallapura[2] are perhaps the earliest Buddhist remains in the south, and as the Pallavas under whom they were executed ruled a part of Mysore, may be mentioned here though not included within the present limits of the territory.

The *Jain architecture* of the south of India is represented by two classes of temples, *bastis* and *beṭṭas*, and is in this respect different from that of the north, where the latter are unknown. The bastis are regular temples in the usual acceptance of that word, containing an image of one of the Tírthankaras as the object of worship. The beṭṭas (literally hills) are courtyards,—properly, though not always, at the summit of a hill,—open to the sky, and containing a colossal image of Gomaṭesvara.

[1] *Num. Or.*, III, Part II, 80.

[2] There seems no doubt that the little rath, with its circular termination, is as exact a copy of what a Buddhist chaitya hall was at the time it was carved, as that the great rath is a correct reproduction of a Buddhist vihára at the same period.

The excavations could not well have been made later than the sixth century, and it seems hardly to admit of doubt that we have here petrifactions of the last forms of Buddhist architecture, and of the first forms of that of the Dravidians.—Fergusson, *Hist. Ind. Arch.*, 175, 329.

The principal group of bastis at present known above the Ghats is that at Sravan Belgola. There are there two hills—the Indra-giri on whose summit the colossal image just described stands and dominates the plain. On a shoulder of the other, called Chandra-giri, stand the bastis, fifteen in number. As might be expected from their situation, they are all of the Dravidian style of architecture, and are consequently built in gradually receding storeys, each of which is ornamented with small simulated cells. . . . . Their external appearance is more ornamental than that of the generality of northern Jaina temples. The outer wall of those in the north is almost always quite plain. The southern ones are as generally ornamented with pilasters, and crowned with a row of ornamental cells. Inside is a court, probably square, and surrounded by cloisters, at the back of which rises the vimána over the cell which contains the principal image of the Tirthankara. It always is surmounted by a small dome, as is universally the case with every vimána in Dravidian architecture.

It may be a vain speculation, but it seems impossible not to be struck with the resemblance to the temples of southern Babylonia. The same division into storeys with their cells ; the backward position of the temple itself ; the panelled or pilastered basement, are all points of resemblance it seems difficult to regard as purely accidental.[1]

Besides the greater temples, there are several varieties of smaller ones, which seem peculiar to the style. Four-pillared pavilions are not uncommon in front of Hindu temples in the south, but these Jain mantapas are five-pillared[2] [that is, with a pillar at each angle and one in the middle. There is one before the entrance to the betta on Sravan Belgola, the middle pillar being so supported from above that a handkerchief can be passed through below its base].

Though not the grandest, certainly the most elegant and graceful objects belonging to the Jaina style of architecture are the stambhas which are found attached to almost every temple. They are used sometimes by the Hindus, but then generally as díp-dáns or lamp-bearing pillars, and in that case have some arrangement for exhibiting light from their summit. With the Jains this does not appear ever to have been the case. Their pillars are the lineal descendants of those of the Buddhists, which bore either emblems or statues, generally the former—or figures of animals. With the Jains or Vaishnavas they as generally bore statues. Be this as it may, they seem nowhere to have been so frequent or so elaborately adorned as among the Jains in the south. . . . They generally consist of a single block of granite, square at base, changing to an octagon, and again to a figure of sixteen sides, with a capital of very elegant shape. Some, however, are circular, and indeed their variety is infinite. They range from thirty to forty feet and even fifty feet in height, and whatever their dimensions, are among the most elegant specimens of art in southern India.[3]

The Hindu temples of Mysore, as distinguished from those of the Jains, are divided between two styles, which the great authority on

[1] *Hist. Ind. Arch.*, 267-270. [2] *ib.*, 274. [3] *ib.*, 276, 336.

architectural questions already quoted, designates Dravidian and Chalukyan. The former prevails in the south and east, the latter in the north and west, but occasionally a building of one style will be found within the region mostly occupied by the other. The Chalukyan style, which was adopted all over the Dekhan from coast to coast—its northern limit being a line from the source of the Godavari to the mouth of the Mahanadi, and its southern, one from the sources of the Kaveri passing west of Vijayanagar to the mouth of the Krishna—attained its fullest development and highest degree of perfection in Mysore. The Dravidian style did at one time, during the temporary eclipse of the Chalukya power, penetrate further north as far as Ellora, but it seems to have been a spasmodic effort and it took no permanent root there. At that time were excavated the beautiful Kailása and other temples of Dravidian architecture at Ellora, now known to have been executed under the Ráshtrakútas in the eighth century.[1]

Dravidian style.—The raths at Mahábalipur, dating from the sixth century, may be considered as the prototypes of the style. From them to the Kailása at Ellora "the transition is easy, but the step considerable. At the first-named place we have manifest copies of structures intended originally for other purposes and used at Mahábalipur in a fragmentary and disjointed manner. At Ellora, on the contrary, the whole is welded together, and we have a perfect Dravidian temple, as complete in all its parts as at any future period. . . . It seems certain that the square raths are copies of Buddhist viháras, and are the originals from which all the vimánas in southern India were copied, and continued to be copied, nearly unchanged, to a very late period. . . . . On the other hand, the oblong raths were halls or porticoes with the Buddhists, and became the gopuras or gateways which are frequently—indeed generally—more important parts of Dravidian temples than the vimánas themselves. They too, like the vimánas, retain their original features very little changed to the present day."

The temples consist almost invariably of four parts, arranged in various manners, and differing in themselves only according to the age in which they were executed. 1. The *vimána*, or actual temple itself. It is always square in plan and surmounted by a pyramidal roof of one or more storeys. It contains the cell in which the image of the god or his emblem is placed. 2. The *manṭapas*, or porches which always cover and precede the door leading to the cell. 3. The *gópuras*, or pyramidal towers over the gateway, often the loftiest and most imposing feature in the temple. 4. Choultries or pillared halls used for various purposes. Besides these, are tanks or wells and other buildings for the residence or use of the priests.

[1] *See* above, p. 325.

The finest Dravidian temples, as might be expected, are to be met with south and east beyond the limits of the Mysore territory. But the temple of Ranganátha at Seringapatam, of Chámundi on the hill of that name, the Halsur pagoda, the temples of Melukote, Talkad, Tirumakúdlu, Ramnathpur and other places may be referred to as effective illustrations.

Chálukyan style.—The Chálukyan style is neither the least extensive nor the least beautiful of the three Hindu styles of architecture. It reached its greatest perfection in Mysore. The style is thus described :—The temple itself (that is, the compartment occupied by the god) is polygonal or star-shaped. The sides, however, are not obtained as in the northern style by increments added flatly to a square, but are points touching a circle, at one time apparently right angles, but afterwards either more acute or flatter than a right angle. There are four principal faces larger than the others, three occupied by niches, the fourth by the entrance. The roof is in steps, and with a flat band on each face in continuation of the larger face below. The porch is simple, consisting of columns disposed equidistantly over its floor. [I would add that this porch is generally surrounded by a wide stone seat or bench, with a sloping back, which runs completely round the porch and forms as it were a low wall on every side.] The details are often of great beauty, especially the entrances, which are objects on which the architects generally lavished their utmost skill. Nothing in Hindu art is more pleasing than the pierced slabs which the Chálukyas used for windows. The pillars, too, are rich without being overdone : and as it is only in pairs that they are of the same design, the effect of the whole is singularly varied and yet at the same time pleasing and elegant. The temples generally stand on a terrace a few feet high and from ten to fifteen feet wide. This is one of the characteristic features of Chálukyan design, and adds very considerably to the effect of their temples.

The buildings of this style are very numerous in the north and west of Mysore. The temple of Kedáresvara at Balagami is probably one of the oldest, and judging from the ruined and deserted temples at that place it must have been one of the richest museums of sculpture and architecture in Mysore. The temples at Kubattur also must at one time have been splendid buildings. Those at Arsikere, Harnhalli, Turvekere, Naglapura, and numerous other places might be adduced as good examples of the style.

But it was to the munificence of the Hoysala kings, and to the genius of their gifted architects and sculptors, whom tradition declares to have been Jakanáchári and his son Dankanáchári, that the Chálukyan style

owed its fullest development and highest degree of perfection. The temples of Halebid, Belur and Somnathpur may be regarded as masterpieces of the style. The Hoysales'vara, the oldest of the two ornamental temples at Halebid, was probably commenced by Vinayáditya (1047 to 1100). It is unfinished, but whether this was always the case, or whether it was completed and afterwards lost its towers, it is difficult to say.[1] The Kedáres'vara,[2] the other temple, was erected by Vira Ballála and his junior queen Abhinava Ketala Devi, apparently at the close of his reign, about 1219. The Belur temple was founded by Vishnuvarddhana after his renunciation of the Jain faith in 1117, and perhaps completed during his reign, which ended in 1141. It appears, however, to have suffered injury at the time of the Muhammadan invasion in 1310, and was shut up till the reign of Harihara, probably the first Vijayanagar king of that name, who reigned 1336 to 1350. He repaired the temple, built the gopura and restored the endowments. If it was Harihara II who did this, it would be between 1379 and 1405. The Somnathpur temple was completed in 1270, and was erected by Soma or Somanátha, the general of the Hoysala king Narasimha III, who also founded the agrahára of Somnathpur.[3] Of these the Belur temple is the only one that has not been abandoned, but owing to repairs and additions at various times the unity of design is somewhat marred.

Halebid.—The Halebid temples were sacred to Siva, under the respective forms of Hoysales'vara and Kedáres'vara. The second only was completed, and was a perfect gem of art. Its sculptor seems to have been Dévója.

Its plan was star-shaped, with sixteen points, and it had a porch well proportioned in size. Its roof was conical, and from the basement to the summit it was covered with sculptures of the very best class of Indian art, and these so arranged as not materially to interfere with the outlines of the building, while they imparted to it an amount of richness only to be found among specimens of Hindu art. If it were possible, adds Mr. Fergusson, to illustrate this little temple in anything like completeness, there is probably

[1] There is a picture in Mr. Fergusson's book, p. 400, of a restored view of the temple as he conceives it would have been if complete. The chief thing requiring correction is the finial ornament of the towers, resembling a lantern. It should really be a kalas'a or sacrificial vase, bound round with a cloth knotted towards the four cardinal points, which, filled with holy water, is used at the consecration of temples.

[2] This has been erroneously called Kaites'vara and Kaitabhes'vara by some writers.

[3] These dates and facts are taken from inscriptions, except for the big Halebid temple, for the exact date of which no such authority has been obtained. Mr. Fergusson has been misled (p. 392) about the dates, putting down Somnathpura temple (on what authority is not stated) as erected in the time of Vinayaditya, who came to the throne in 1047.

nothing in India which would convey a better idea of what its architects were capable of accomplishing.[1]

It is, however, surpassed in size and magnificence by its neighbour, the great temple at Halebid, which, had it been completed, is one of the buildings on which the advocate of Hindu architecture would desire to take his stand. Unfortunately it never was finished, the works having been stopped after they had been in progress apparently for eighty-six years.[2] [The names of some of the sculptors were Dévója, Késimója's son Masaṇa, Máyaṇa, and Tánagundúr Harisha.]

The general arrangements of the building are that it is a double temple. If it were cut into halves, each part would be complete, with a pillared porch of the same type as that at Belur, an antaráḷa or intermediate porch, and a sanctuary containing a lingam, the emblem of Siva. Besides this, each half has in front of it a detached pillared porch as a shrine for the bull Nandi. Such double temples are by no means uncommon in India, but the two sanctuaries usually face each other and have the porch between them. Its dimensions may roughly be stated as 200 feet square over all, including all the detached pavilions. The temple itself is 160 feet north and south, by 122 feet east and west. Its height, as it now remains, to the cornice is about twenty-five feet from the terrace on which it stands. It cannot, therefore, be considered by any means as a large building, though large enough for effect. This, however, can hardly be judged of as it now stands, for there is no doubt but that it was intended to raise two pyramidal spires over the sanctuaries, four smaller ones in front of these, and two more, one over each of the two central pavilions. Thus completed, the temple, if carried out with the richness of detail exhibited in the Kedár-esvara, would have made up a whole which it would be difficult to rival anywhere.

The material out of which this temple is erected is an indurated potstone of volcanic origin, found in the neighbourhood. This stone is said to be soft when first quarried, and easily cut in that state, though hardening on exposure to the atmosphere. Even this, however, will not diminish our admiration of the amount of labour bestowed on the temple ; for, from the number of parts still unfinished, it is evident that, like most others of its class, it was built in block and carved long after the stone had become hard. As we now see it the stone is of a pleasing creamy colour and so close-grained as to take a polish like marble. The pillars of the great Nandi pavilion, which look as if they had been turned in a lathe, are so polished

[1] This exquisite specimen of the most ornate Chálukyan style of architecture is—with shame be it written—a thing of the past. Mr. Fergusson's gloomy anticipations (p. 397) have been completely fulfilled. The trees which had rooted themselves in the vimána were suffered to do their work unchecked, and the building is now a hideous heap of ruin. Some of the most perfect figures have been conveyed to Bangalore, and set up in the Museum, but divorced from their artistic setting they have lost their meaning. A proposal has been made, I believe, to convey the ruins to Mysore, and erect the restored temple there as a memorial to the late Mahárája.

[2] There seems to be no authority for this statement.

as to exhibit what the natives call a double reflection—in other words to reflect light from each other. The enduring qualities of the stone seem to be unrivalled, for, though neglected and exposed to all the vicissitudes of a tropical climate for more than six centuries, the minutest details are as clear and sharp as the day they were finished. Except from the splitting of the stone arising from bad masonry, the building is as perfect as when its erection was stopped by the Muhammadan conquest.

The building stands on a terrace, ranging from five feet to six feet in height, and paved with large slabs. On this stands a frieze of elephants, following all the sinuosities of the plan and extending to some 710 feet in length, and containing not less than 2,000 elephants, most of them with riders and trappings, sculptured as only an oriental can represent the wisest of brutes. Above these is a frieze of shárdúlas, or conventional tigers—the emblems of the Hoysala Ballálas who built the temple. Then comes a scroll of infinite beauty and variety of design; over this a frieze of horsemen and another scroll; over which is a bas-relief of scenes from the Ramayana, representing the conquest of Ceylon and all the varied incidents of that epic. This, like the other, is about 700 feet long. (The frieze of the Parthenon is less than 550 feet.) Then come celestial beasts and celestial birds, and all along the east front a frieze of groups from human life, and then a cornice, with a rail, divided into panels, each containing two figures. Over this are windows of pierced slabs, like those of Belur, though not so rich or varied. In the centre, in place of the windows, is first a scroll, and then a frieze of gods and heavenly apsaras—dancing girls and other objects of Hindu mythology. This frieze, which is about five feet six inches in height, is continued all round the western front of the building, and extends to some 400 feet in length. Siva, with his consort Parvati seated on his knee, is repeated at least fourteen times; Vishnu in his nine avatars even oftener. Brahma occurs three or four times, and every great god of the Hindu pantheon finds his place. Some of these are carved with a minute elaboration of detail which can only be reproduced by photography, and may probably be considered as one of the most marvellous exhibitions of human labour to be found even in the patient East.

It must not, however, be considered that it is only for patient industry that this building is remarkable. The mode in which the eastern face is broken up by the larger masses, so as to give height and play of light and shade, is a better way of accomplishing what the Gothic architects attempted by their transepts and projections. This, however, is surpassed by the western front, where the variety of outline, and the arrangement and subordination of the various facets in which it is disposed, must be considered as a masterpiece of design in its class. If the frieze of gods were spread along a plain surface it would lose more than half its effect, while the vertical angles, without interfering with the continuity of the frieze, give height and strength to the whole composition. The disposition of the horizontal lines of the lower friezes is equally effective. Here again the artistic combination of horizontal with vertical lines, and the play of outline and of light and shade, far surpass anything in Gothic art. The effects are

just what mediæval architects were often aiming at, but which they never attained so perfectly as was done at Halebid.

Before leaving Halebid, it may be well again to call attention to the order of superposition of the different animal friezes. As in the rock-cut monastery described by the Chinese pilgrims, so here, the lowest were the elephants ; then the lions ; above these came the horses ; then the oxen, and the fifth storey was in the shape of a pigeon. The oxen here are replaced by a conventional animal, and the pigeon also by a bird of a species that would puzzle a naturalist. The succession, however, is the same, and the same five genera of living things form the ornaments of the moonstones of the various monuments in Ceylon. Sometimes in modern Hindu temples only two or three animal friezes are found, but the succession is always the same, the elephants being the lowest, the next above them are the lions, and then the horses, etc. When we know the cause of it, it seems as if this curious selection and succession might lead to some very suggestive conclusions. At present we can only call attention to it in hopes that further investigation may afford the means of solving the mystery.

If it were possible to illustrate the Halebid temple to such an extent as to render its peculiarities familiar, there would be few things more interesting or more instructive than to institute a comparison between it and the Parthenon at Athens. Not that the two buildings are at all like one another ; on the contrary, they form the two opposite poles—the alpha and omega of architectural design ; but they are the best examples of their class, and between these two extremes lies the whole range of the art. The Parthenon is the best example we know of pure refined intellectual power applied to the production of an architectural design. Every part and every effect is calculated with mathematical exactness, and executed with a mechanical precision that never was equalled. All the curves are hyperbolas, parabolas, or other developments of the highest mathematical forms —every optical defect is foreseen and provided for, and every part has a relation to every other part in so recondite a proportion that we feel inclined to call it fanciful, because we can hardly rise to its appreciation. The sculpture is exquisitely designed to aid the perfection of the masonry—severe and godlike, but with no condescension to the lower feelings of humanity.

The Halebid temple is the opposite of all this. It is regular, but with a studied variety of outline in plan, and even greater variety in detail. All the pillars of the Parthenon are identical, while no two facets of the Indian temple are the same ; every convolution of every scroll is different. No two canopies in the whole building are alike, and every part exhibits a joyous exuberance of fancy scorning every mechanical restraint. All that is wild in human faith or warm in human feeling is found portrayed on these walls ; but of pure intellect there is little—less than there is of human feeling in the Parthenon.

The great value of the study of these Indian examples is that it widens so immensely our basis for architectural criticism. It is only by becoming familiar with forms so utterly dissimilar from those we have hitherto been

conversant with, that we perceive how narrow is the purview that is content with one form or one passing fashion. By rising to this wider range we shall perceive that architecture is as many-sided as human nature itself, and learn how few feelings and how few aspirations of the human heart and brain there are that cannot be expressed by its means. On the other hand, it is only by taking this wide survey that we appreciate how worthless any product of architectural art becomes which does not honestly represent the thoughts and feelings of those who built it, or the height of their loftiest aspirations.

The Belur and Somnathpur temples were dedicated to Vishnu, under his denomination of Kes'ava.

Belur.—This consists of a principal temple, surrounded by four or five others and numerous subordinate buildings, enclosed in a court by a high wall, measuring 360 feet by 440 feet, and having two very fine gateways or gopuras in its eastern front. The great temple consists of a very solid vimána, with an antaráḷa, or porch ; and in front of this a porch of the usual star-like form, measuring ninety feet across. The whole length of the temple, from the east door to the back of the cell, is 115 feet, and the whole stands on a terrace about three feet high, and from ten feet to fifteen feet wide. The arrangements of the pillars have much of that pleasing subordination and variety of spacing which is found in those of the Jains, but we miss here the octagonal dome, which gives such poetry and meaning to the arrangements they adopted. Instead of that, we have only an exaggerated compartment in the centre, which fits nothing, and though it does give dignity to the centre, it does it so clumsily as to be almost offensive in an architectural sense.[1]

It is not, however, either to its dimensions, or the disposition of its plan, that this temple owes its pre-eminence among others of its class, but to the marvellous elaboration and beauty of its details. The effect of these, it is true, has been, in modern times, considerably marred by the repeated coats of whitewash which the present low order of priests consider the most appropriate way of adding to the beauty of the most delicate sculptures. Notwithstanding this, however, their outline can always be traced, and where the whitewash has not been applied, or has been worn off, their beauty comes out with wonderful sharpness.

The richness and variety of pattern displayed in the windows of the porch are astonishing. These are twenty-eight in number, and all are different. Some are pierced with merely conventional patterns, generally star-shaped, and with foliaged bands between ; others are interspersed with figures and mythological subjects—for instance, the Varaha avatar, and other scenes connected with the worship of Vishnu, to whom the temple is dedicated. The pierced slabs themselves, however, are hardly so remarkable as the richly-carved base on which they rest, and the deep cornice which over-shadows and protects them. The amount of labour, indeed, which each facet of this porch displays is such as, I believe, never was bestowed on any surface of equal extent in any building in the world ; and though the design

[1] This dome fell in and is now being rebuilt.

is not of the highest order of art, it is elegant and appropriate, and never offends against good taste. [The names of some of the sculptors are Baḷḷigráme Dásója, his son Chávaṇa, Chikka Hampa, Malliyanna, Máchári, Máyana, Yallana's son Masada, and Káṭója's son Nágója.][1]

The sculptures at the base of the vimána, which have not been whitewashed, are as elaborate as those of the porch, in some places more so; and the mode in which the undersides of the cornices have been elaborated and adorned is such as is only to be found in temples of this class. The upper part of the tower is anomalous. It may be that it has been whitewashed and repaired till it has assumed its present discordant appearance, which renders it certainly a blot on the whole design. My own impression rather is, that, like many others of its class, it was left unfinished, and the upper part added at subsequent periods. Its original form most probably was that of the little pavilions that adorn its portals, which have all the peculiar features of the style—the flat band on each face, the three star-like projections between, and the peculiar crowning ornament of the style. The plan of the great tower, and the presence of the pavilions where they stand, seems to prove almost beyond doubt that this was the original design; but the design may have been altered as it progressed, or it may, as I suspect, have been changed afterwards.

Somnathpur.—The building at Somnathpur is a single but complete whole. The temple is triple, the cells with their sikharas being attached to a square pillared hall, to the fourth side of which a portico, now in ruins, is attached, in this instance of very moderate dimensions. It is impossible without illustrations to give an idea of the elegance of outline and marvellous elaboration of detail that characterizes these shrines. The temple stands on a raised terrace intended to correspond with the ground plan of the temple, each of the numerous angles being supported by an elephant. The whole stands in a court-yard, surrounded by an open verandah, containing a cell between every set of columns. The exterior walls of the temple are carved with an elaborate profusion of detail, the arrangement of the subjects being similar to that at Halebid. The small canopies with pendants, which cover each compartment of the antaráḷa, are all, like those of the Balagami temples, carved with a different design, on which the architect has expended the utmost fertility of his skill.

Malnad.—The temples of the Malnad regions in the west are of a totally different style, corresponding to that of Canara. The framework is of wood, standing on a terrace of laterite, and the whole covered with a tiled and gabled roof. The wooden pillars and joists are often well carved, but not in the highest style of art. Better specimens of

[1] One of them has sculptured to the life a fly, of the natural size, as if settled on one of the figures; thus rivalling the feat of Apelles, the most celebrated of the Grecian painters, and the one who accompanied Alexander the Great into Asia.

this order of architecture must most probably be sought beyond the western limits of Mysore.

Saracenic style.—The best examples of Saracenic architecture in Mysore are to be found at Sira, and are doubtless to be classed under the Mughal style. It is true that the Pathan state of Bijapur, distinguished for its architecture, was the first Musalman power that subdued the north and east, but the governors of its Carnatic possessions being Mahrattas, no buildings of note seem to have been erected in the Pathan style. At Sante Bennur is an imposing mosque erected by Randulha Khan, together with some elegant pavilions in the centre of and around the tank in front of it, built on the original Hindu work of Hanumappa Nayak.

Bijapur was taken by the Mughals under Aurangzeb in 1687, and the subjection of the Carnatic provinces belonging to it immediately followed, ending in the establishment of Sira as the capital of the new territory acquired in Mysore. The architectural remains now existing are the Jama Masjid at Sira, and several tombs, partly ruined, both at Sira and Goribidnur. The domes at Sira are not large, but of a very light and elegant design, being well raised on a sort of floral cup, the petals of which press close round the base. These structures have survived through being of stone. It is on record that a palace was erected by one of the governors of Sira, named Dilávar Khán, of such elegance that it was adopted as the model on which Haidar and Tipu built their palaces at Bangalore and Seringapatam. But all three were of such perishable materials, though richly decorated with gilding and colour, that hardly anything now remains of either of them.[1] We have, however, some buildings of the latter

[1] The Bangalore palace was used for the offices of the Administration until 1868, when, being no longer safe, it was abandoned, and the greater part has since been demolished.

Of the palace at Seringapatam, Buchanan says that it was a very large building, surrounded by a massy and lofty wall of stone and mud ; and though outwardly of a mean appearance, containing some handsome apartments, but ill-ventilated. The private apartments of Tipu formed a square, in one side of which were the rooms that he himself used. The other three sides of the square were occupied with warehouses, in which he had deposited a vast variety of goods, for he acted not only as a prince, but also as a merchant. These goods were occasionally distributed among the amildars with orders to sell them, on the Sultan's account, at a price far above their real value, which was done by forcing a share of them upon every man in proportion to his supposed wealth.

The apartment most commonly used by Tipu was a large lofty hall, open in front after the Musalman fashion, and on the other three sides entirely shut up from ventilation. From the principal front of the palace, which served as a revenue office, and as a place from whence the Sultan occasionally showed himself to the populace, the chief entry into the private square was through a strong narrow passage, wherein were

period still maintained in good order. They are the Makbara or mausoleum of Haidar's family at Kolar, the great mosque at Seringapatam, with the Gumbaz or mausoleum of Haidar and Tipu in the Lal Bagh at the same place, and the summer palace known as the Darya Daulat. Of this latter building, Mr. Rees, who has travelled much in India and Persia, says:—"The lavish decorations, which cover every inch of wall from first to last, from top to bottom, recall the palaces of Ispahan, and resemble nothing that I know in India."[1] There are also tombs at Channapatna and a mosque at Nagar.

The mausoleum of Haidar and Tipu is an effective building. The central apartment, containing the tombs, is covered with a great dome, and is surrounded with a colonnade of pillars of polished black serpentine, the inner entrance being enriched with doors of ebony inlaid with ivory, the gift of Lord Dalhousie. The same Governor-General, on his visit to Mysore in 1855, directed the restoration and repair of the Darya Daulat, then falling to decay, in commemoration of its having been the residence of the great Duke of Wellington. An account of it will be found under Seringapatam in Vol. II.

Lingáyits.—The Lingáyits have adopted what seems to me a somewhat distinctive style in their public buildings, such as mathas, tombs, etc., which is a combination of the Hindu and Saracenic. The best specimens perhaps are the tombs of the Coorg Rajas at Mercara, but there are buildings at Nagar, Chitaldroog, Náyakanhatti and other places which may serve as illustrations.

In connection with Hindu architecture may be mentioned the rude but substantial and durable bridges across the Kaveri at Seringapatam and at Sivasamudram. The latter are said to be 700 years old. The former was erected under the regency of Purnaiya, and by him named, as stated in an inscription at the place, the Wellesley Bridge, in honour of the then Governor-General. It is composed, as also is the other, of rough stone pillars, firmly let into the rocky bed of the stream. These support stone brackets, on which rest tne stones forming the framework of the bridge, upon which again the floor of the roadway is laid.

Of Anglo-Indian architecture perhaps the less said the better. Yet there are structures deserving of remark. Among these is the de

chained four tigers. Within these was the hall in which Tipu wrote, and into which very few persons except Mir Sadak were ever admitted. Immediately behind this was the bed-chamber, which communicated with the hall by a door and two windows, and was shut up on every other side. The door was strongly secured on the inside, and a close iron grating defended the windows. The Sultan, lest any person should fire upon him while in bed, slept in a hammock which was suspended from the roof by chains in such a situation as to be invisible through the windows. The only other passage from the private square was into the zenana or women's apartments.

[1] *The Duke of Clarence in Southern India*, p. 81.

Havilland arch at Seringapatam. This engineer officer seems to have been of somewhat erratic genius. He proposed the construction of a brick arch, of a span greatly exceeding anything that had at that time been attempted, and on his design being set aside as visionary, resolved to demonstrate its practicability, and thus built the great arch (112 feet span) across the garden attached to his own house, where it still stands as a monument of his skill.[1] But, as a rule, it is perhaps not too much to say that in public, no less than in private, buildings erected under European direction all pretensions to architecture were too long ignored as being totally unconnected with engineering. Of late years, however, under Colonel (afterwards Sir Richard) Sankey as Chief Engineer, and his successors, more attention has been paid to this point, and several effective buildings have been erected, those on the largest scale being at Bangalore and Mysore.

Engraving.—Of the art of engraving the best examples are to be found in the numerous inscriptions on copper or stone scattered over the country. Some of the oldest on stone (as those of the Bána kings at Srinivaspur) are deeply and heavily cut, on ponderous and massive slabs, as if by the hands of a giant race. But the Kadamba inscription of the fifth century on a stone pillar at Tálgunda is a beautiful example of regular and ornamental engraving in the so-called box-headed character. Some of the old rock inscriptions at S'ravana Belgola are also fine specimens. The Ganga grants on copper of the fifth to the eighth centuries are most artistically incised, both as to form and execution. Many of these are the work of a Vis'vakarma, and as the Kadamba inscription of about the third century on a stone pillar at Malavalli, in the Cave character, was also engraved by a Vis'vakarma, it is evident that there was a family of this name attached to the court as engravers, first under the Kadambas and then under the Gangas. With the Chalukyas the style improves, and later on the Cholas covered some of the eastern temples with inscriptions in old Tamil deeply and well cut. But it is under the Hoysalas, perhaps, that we find the most perfect specimens. Their inscriptions, on beautifully polished slabs of hornblende, are masterpieces of the art. The letters are of ornamental design, varied to suit their positions, and the whole so well fitted and harmonized together that no space is left where a single additional letter could be introduced. Sometimes the initial letters are formed into designs imitating birds or other animals.

Wood carving.—Mysore is famous for its ornamental sandal-wood carving. It is done by a class called Gúḍigar, who are settled in the Shimoga District, chiefly at Sorab. The designs with which they

[1] He also designed the large room without pillars in the old Residency at Mysore, and the wide circular roof of St. Andrew's Kirk at Madras.

entirely cover the boxes, desks and other articles made, are of an extremely involved and elaborate pattern, consisting for the most part of intricate interlacing foliage and scroll work, completely enveloping medallions containing the representation of some Hindu deity or subject of mythology, and here and there relieved by the introduction of animal forms. The details, though in themselves often highly incongruous, are grouped and blended with a skill that seems to be instinctive in the East, and form an exceedingly rich and appropriate ornamentation, decidedly oriental in style, which leaves not the smallest portion of the surface of the wood untouched. The material is hard, and the minuteness of the work demands the utmost care and patience. Hence the carving of a desk or cabinet involves a labour of many months, and the artists are said to lose their eyesight at a comparatively early age. European designs they imitate to perfection.

Many old Hindu houses contain beautiful specimens of ornamental wood carving in the frames of doors, and in pillars and beams.

Inlaid work.—The art of inlaying ebony and rosewood with ivory, which seems to have been cultivated by Muhammadans, and of which the doors of the mausoleum at Seringapatam are good examples, has latterly been revived at Mysore, and many useful and ornamental articles are now made there of this kind of intaglio. Similar work is also met with in choice musical instruments, especially the *vína*.

Music.—It is perhaps not superfluous to refer to this subject, as Captain Day, who is an authority, says:—"There are two distinct systems of music in use in India, the Hindustani and the Karnátik. The latter, practised chiefly in Southern India, may be called the national system; the Hindustani shows traces of Arabian and Persian influence. The Hindu scale has, possibly from a natural transformation tending to simplicity, become practically a half tone one, allowing of the performance of expressive melodic music capable of the greatest refinement of treatment, and altogether outside the experience of the Western musician. As regards the apparent similarity of the Indian and European scales, it must be remembered that the latter were evolved in process of time from those of ancient Greece. It is tolerably certain that the music of the whole ancient world consisted entirely of melody, and that harmony or counterpoint, in the modern acceptation of the word, was altogether unknown. The historian Strabo shows that Greek influence extended to India, and also that Greek musicians of a certain school attributed the greater part of the science of music to India. Even now, most of the old Greek modes are represented in the Indian system."[1] The study of music in this

[1] *Notes on Indian Music*, a lecture delivered before the Musical Association in

country originated, perhaps, in the chanting of the Sáma Veda, and sacrificial rites, it is said, lost their efficacy unless three Brahmans were present, two playing on the *vína* and the third chanting.[1] The designation of the seven notes by the initial letters of their names is older than the time of Pánini (fourth century B.C.) This notation passed from the Hindus to the Persians, and from these again to the Arabs, and was introduced into European music by Guido d'Arezzo at the beginning of the eleventh century. Our word *gamut*, indeed, is supposed to come from the Sanskrit *gráma*, Prákrit *gáma*, a musical scale.[2]

INDUSTRIAL ARTS

The most generally practised industrial arts of native growth are those connected with metallurgy, pottery, carpentry, tanning, glass-making, the production of textile fabrics or the raw material for them, rope-making, the expression of oil and saccharine matter, and the manufacture of earth salt. Other arts have doubtless sprung up in the large centres of population, chiefly in connection with the wants of Europeans or under their instruction, but the above are the principal ones extensively practised among the people, except the last, which is now partially prohibited.

Gold-mining.—The most remarkable industrial development of late years in Mysore has been in connection with gold-mining. This State is now the principal gold-producing country in India, the output for 1894 being valued at 14¼ million rupees against only Rs. 86,352 from other parts. Mysore has thus acquired a definite place among the gold-fields of the world.[3]

The main source of the metal at present is the Kolar gold-fields, situated to the east of a low ridge in the Bowringpet taluq. The existence here of the remains of old workings has long been known (*see above*, p. 32).[4] But it was not till 1873 that any special attention was directed to them. In that year Mr. M. F. Lavelle, a resident in Bangalore, retired from the army, with some knowledge of geology, applied to the Government for the exclusive privilege of mining in the

February 1894; *see* also an article by E. Stradiot in *Mad. Journ. Lit. and Sc.*, 1887-8.

[1] Stringed instruments played with the bow were considered vulgar, while wind and percussion instruments were left to the lower classes.

[2] *See* Weber's *Hist. Ind. Lit.*, 272.

[3] The output in the principal gold-producing countries in 1895 was valued at—United States, £9,348,000; Australasia, £9,167,000; Transvaal, £8,896,000; Russia, £7,081,000; Mexico, £1,167,000. *Jour. Soc. Arts*, xxiv., 525.

[4] Nothing has been found in the mines to show at what period they were excavated, or why they were abandoned.

Kolar District, his thoughts being principally directed to the possibility of finding coal. His request was granted on certain terms, the principal of which, in addition to the maintenance of existing rights, were,—liberty to select separate pieces of land, not in excess of ten, no one piece to exceed two square miles in area; each block to be leased for twenty years, with exclusive mining rights; a royalty of 10 per cent. on net sale proceeds of all ores, coal, &c., and of 20 per cent on that of precious stones, to be paid to the Mysore Government. If the land should be arable waste, a premium of thirty times the assessment was to be paid, besides the annual rent fixed by the revenue authorities. On these conditions Mr. Lavelle commenced operations by sinking a shaft in 1875 near Urigam. But finding that large capital would be required for carrying out the work, he next year, with the approval of Government, transferred all his rights and concessions to Colonel Beresford. This officer, with some friends among racing men, formed a syndicate known as the Kolar Concessionaires, who took up the matter in earnest. Certain modifications were made, on their representations, in the terms of the concession. Thus the time for prospecting was extended to 1883; the selected lands were leased for thirty instead of twenty years; and the royalties of 10 and 20 per cent. were reduced to 5 and 10. On these terms twenty square miles, forming the Kolar gold-field (*see above*, p. 43), were from time to time taken up by the Concessionaires, and the royalty and rent claimed by Government were further optionally allowed to be commuted by a present payment of Rs. 55,000 per square mile.

By 1881 the Concessionaires had secured the valuable aid of Messrs. John Taylor and Sons, a firm of mining engineers in London. A general rush was made for gold, and rules for mining leases in other parts were drawn up on similar terms, with the addition (in order to discourage mere speculators) that a deposit of Rs. 1,000 was to be paid for every square mile applied for, and an assessment of eight annas an acre paid on all unarable land. If after two years the Government were not satisfied with the working, the right was reserved to levy an assessment of Rs. 5 an acre in lieu of royalty, &c. In 1886, finding that the Kolar Concessionaires were realizing vast sums by sale of land containing gold, a fine of one-tenth of the consideration for every assignment of a lease was levied by Government. The only other, besides the Kolar gold-field, where work was being carried on at this period, was the Honnali gold-field (*see above*, p. 41).

The Government considered it necessary now to have the country generally surveyed with reference to auriferous tracts. Mr. Lavelle, with an assistant, accordingly made a rough survey, which was then

gone over by Mr. Bruce Foote, of the Geological Survey of India, and duly mapped out. On the information thus obtained it was resolved to modify the existing rules, by providing for the grant of prospecting licenses; by making the grant of a lease conditional on a Company being formed within two years with a paid-up working capital of not less than £5,000 per square mile; and by reserving to Government the right to limit the total area to be leased for the time being, and to dispose of mining leases for such area by public competition.

Under these conditions, up to 1891, about ninety-seven square miles in all had been leased out for gold-mining, the land being situated in every District except Bangalore, which is not within the auriferous band. The Honnali gold-field has ceased work for some time, great difficulty having arisen in controlling the water in the mines. The Harnhalli gold mines made a beginning, but are now at a standstill. The Holgere mines were also started. The principal mines at the present time at work, in addition to the Kolar mines, are those at Kempinkote, of which high expectations have been formed. At the end of 1894 a regular Geological Department was established under Mr. Bruce Foote, for the examination and record of the mineral resources of the State, and a number of apprentice geologists are under training for employment in the Province. The old abandoned gold workings at Butugahalli are also being explored.

From its nature there is a great element of risk and uncertainty inherent in gold-mining, and the success of even the Kolar gold mines was for a considerable time far from assured; in fact, they were on the verge of extinction. It was in February 1881 that Captain B. D. Plummer, a miner of great experience, appointed manager of the Nundydroog mine, commenced operations there. These were continued till April 1883, when work was stopped for want of funds. Three trial crushings had resulted in yields of 1 dwt. 23 grs., 2 dwts., and 2 dwts. 8 grs. respectively, per ton of quartz, and Captain Plummer considered the indications so favourable that he strongly urged a continuance of the works, but the shareholders had not the courage to venture more on the concern. Meanwhile the Mysore Company had also come nearly to the end of their resources. A balance of only £13,000 remained, and it was a question whether to divide this amongst the shareholders or to risk it on the mine. The strong advice of Mr. John Taylor prevailed, and Captain Plummer was sent out in December 1883, to do the best he could with the amount available. There were probably not half-a-dozen persons at that time who retained any faith in the future of Indian gold-mining, and he was considered to be engaged in a lost cause. What actually occurred is

matter of history. The champion lode was discovered by him, and by 1885 the success of the Kolar gold-field had been established.[1] The £1 shares of the Mysore mine,[2] which had been as low as 10d., were soon quoted at £7 10s. It paid next year a royalty of Rs. 33,368 to Government, the first sum in a since ever-increasing item of revenue that in 1895 had risen to Rs. 733,527. In March 1895 the Nundydroog mine was again started. Urigam, for carrying on which an appeal for half-a-crown per share had before been made in vain, followed. The whole field was roused into activity. In 1892 Champion Reefs began to pay, and now takes the lead, with its £1 shares quoted at £7. In 1895 there were thirteen Companies at work, representing a capital of £3,500,000, with a labour population, including women and children, of 400 Europeans and 11,700 natives. The annual payments on the spot in wages and otherwise exceed 60 lakhs of rupees. In what was a desolate waste, a large and flourishing town has sprung up, provided with most of the conveniences and institutions of European life. A branch railway on the standard gauge, ten miles in length, was opened in 1893, running from the Bowringpet junction of the Bangalore line through most of the principal mining properties, and has proved an immense convenience and a great success. The principal commodity carried by it is coal, to which may be added timber and machinery.

The following table shows the output of gold in ounces for the past seven years in the four dividend-paying mines and in the whole field[3]:—

Mine.	1889.	1890.	1891.	1892.	1893.	1894.	1895.
Mysore	49,238	58,181	66,501	64,385	65,415	52,089	63,446
Urigam	16,437	27,350	34,841	55,836	75,092	69,428	70.352
Nundydroog ...	6,129	15,633	23,590	31,225	27,802	29,658	38,628
Champion Reefs	—	—	—	6,712	31,547	53.516	70,963
Others	3,586	3,768	5,205	4.982	7,279	5,038	6,704
Total oz.	75,390	104,932	130,137	158,158	207,135	209,729	250,093

But taking the returns for the official years, the figures from 1886–7 are as below, giving the total output, total value (the last three years in sterling), amount of royalty, premium, &c., paid to the Mysore

[1] The champion lode runs, at an angle of about 45°, through a large bed of hornblende schistose rock, surrounded by granite. It is not of uniform thickness, being in some places 4 or 5 feet wide, in others almost vanishing, and then widening again.

[2] The deepest level yet worked is in this mine—a shaft of 1,460 feet, in 1895. The old native miners had never got lower than 260 feet.

[3] It may be as well to note here that these and other statements in this chapter, though compiled from the only statistics available, do not profess to be absolutely correct; but they are approximately so, and it was thought better to give what were procurable.

Government, and amount of dividends paid to shareholders (the latter for calendar years and stated in sterling) :—

Year.	Output of gold in oz.	Total value.	Royalty, &c., paid to Government.	Amount paid in Dividends.[1]
1886 87	16,325	Rs. 888,606	Rs. 51,248	—
1887–88	19,083	1,045,678	33,432	—
1888–89	42,548	2,369,946	108,525	—
1889–90	92,014	5,142,016	196,637	£160,242
1890–91	109,643	5,577,930	305,565	227,129
1891 92	146,810	8,415,176	518,450	264.716
1892–93	196,017	£744,957	495,859	297,630
1893–94	199,642	756,687	725,629	247,234
1894 95	234.859	844,271	733,527	358.375
Total	1,056,941	Rs.23,439,352 + £2,345,915	Rs. 3,168,872	£1,555,326

These figures show the magnitude of the interests created. But although the country has naturally benefited greatly thereby, the principal transactions are pretty much confined to England, where all the capital has been raised and where all the gold goes. The dealings in shares take place entirely on the London Stock Exchange, and but an insignificant amount is held in this country, none of it probably by natives, except what shares the Mysore Government hold. The Captains and other officials are English, but the labour employed, as far as Europeans are concerned, consists principally of Italian miners, and the native miners were at one time largely Moplahs from the Western coast, but this is not now the case.

Gold and Silver.—Gold and silver are employed to a very large extent in making jewellery and ornaments, the most favourite method with natives of investing their savings, what is not turned to account in this way being frequently buried. A very small quantity of gold is obtained in the country from washings of the alluvial soil.

The purity of gold is distinguished by its colour. Pure gold is of the twelfth colour, and whatever is wanting to make up twelve is to be considered as alloy. Thus gold of the eleventh colour means a metal composed of eleven parts of gold and one part of alloy. The native mode of purifying gold is to take equal quantities of brickdust and common salt, a good handful, which is put between two pieces of potter's ware and into it the gold. These are placed in the midst of a heap of dried cow-dung (bratties), and lighted at top in a place where the wind cannot produce a strong fire. The pieces of gold when taken out appear incrusted with a black crust, which must be removed, and the process as often repeated as the same is reproduced.

[1] For the first three years I have not been able to get the figures.

The following are some of the ordinary gold and silver ornaments worn by the people :—

Rágaṭe—circular ornaments worn by women at the crown of the head.
Kyádige—crescent-shaped ornaments worn at the back of the head.
Jeḍe bille—smaller ones worn on the plait which hangs down the back.
Chauri kuppe—ornamental pins for the hair, with a bunch of chauri hair attached for stuffing the chignon or plait.
Bávali—earrings for the upper rim of the ear.
Vóle, vále—earrings to fill the large hole in the lobe of the ear.
Padaka—a pear-shaped drop worn generally on the forehead.
Aḍḍike, Gunḍina sara—necklaces.
Kankaṇi—bracelets.
Vanki, Nágamurige, Tóḷu táyiti, Bandi—bracelets worn by women above the elbow.
Bájuband—armlets or broad belt-like ornaments worn by women above the elbow.
Dábu—a broad, flat zone or hoop for the waist worn by women, generally silver.
Luḷi, Ruli, Kálsarpiṇi—anklets (silver).
Kálu-gejje—small, round silver bells worn with anklets, especially by children.
Pilli—silver toe-rings.
Udidhára—silver chains worn by men round the waist.
Karaḍige—silver shrine containing the linga worn by Lingáyits.
Táyiti—small silver money-boxes attached to the girdle.
Suṇṇa káyi—an egg-shaped silver chunam-box.

Gold and silver thread and lace for uniforms and for ornamenting different fabrics are made in Bangalore, and electro-plating is also done here.

A kind of false gilding was formerly used in the decoration of the palaces at Seringapatam. It consisted of paper covered with the false gilding, which was cut into the shape of flowers and pasted on the walls or columns, the interstices being filled up with oil-colours. The manner of making this false gilded paper was as follows :—

Take any quantity of lead, and beat it with a hammer into leaves, as thin as possible. To twenty-four parts of these leaves add three parts of English glue, dissolved in water, and beat them together with a hammer till thoroughly united—which requires the labour of two persons for a whole day. The mass is then cut into small cakes and dried in the shade. These cakes can at any time be dissolved in water and spread thin with a hair-brush on common writing-paper. The paper must then be put on a smooth plank and rubbed with a polished stone till it acquires a complete metallic lustre. The edges of the paper are then pasted down on the board and the metallic surface is rubbed with the palm of the hand, which is smeared with an oil called *gurna*, and then exposed to the sun. On the two following days the same operation is repeated : when the paper acquires a metallic yellow colour.

The gurna oil is prepared as follows : Take three-quarters of a maund (about 18 lb.) of *agase yenne* (linseed-oil), half a maund (12 lb.) of the size called *chandarasa*, and quarter of a maund (6 lb.) of *musambra* or aloes prepared in the country. Boil the oil for two hours in a brass pot.

Bruise the musambra, and having put it into the oil, boil them for four hours more. Another pot having been made red-hot, the chandarasa is to be put into it and will immediately melt. Take a third pot, and having tied a cloth over its mouth, strain into it the oil and musambra : these must be kept in a gentle heat and the chandarasa added to them gradually. The oil must be strained again and it is then fit for use. The chandarasa is prepared from the milky juice of any of the following trees : *ficus glomerata*, *goni*, *bela*, *bevina*, *gobali*, &c. ; it is therefore an elastic gum.[1]

Iron and Steel.—The metal most widely diffused and generally wrought is iron. It is obtained both from ore and from black iron-sand. The iron ore is obtained in small irregular masses by digging a few feet below the surface, generally on low rocky hills, but in some places in the fields. The small masses are generally mixed with clay and sand, which is separated by beating to powder and washing. The ore is of two kinds, one efflorescing into red ochre, the other into yellow. The stones which are too hard to be broken up are called male, while those which being in a state of decay yield to the hammer are called female. The collectors of the ore convey it on either asses or buffaloes to the smelting furnaces. The black sand is found in the rainy season in the nullas or channels formed by torrents from certain hills. The principal places where iron is smelted are in Magadi, Chiknayakanhalli, Malvalli, Heggadadevankote and Arsikere taluqs, and in the southern and central parts of Chitaldroog District, and the eastern parts of Shimoga and Kadur Districts. A steam iron foundry on a considerable scale has been established at Bangalore under European management. There is also a native iron foundry at Chik Ballapur, where sugar-mills and agricultural implements are made or repaired.

Iron-smelting is performed in furnaces, the heat of which is fed by a pair of bellows formed of whole buffalo hides, worked by hand. The process commences with filling the furnace with charcoal. After it is heated, which requires an hour, a basket of ore, containing about thirty-three pounds, reduced to pieces the size of a filbert or pea, is put into the funnel and covered with charcoal ; an hour afterwards a similar basketful of ore is put in, and this addition repeated three times at the stated intervals, care being taken that it is always covered with charcoal and the furnace supplied with a sufficient quantity of this article. After the third addition of ore, a small hole is made at the lowest extremity of the furnace to let out the dross. About an hour after the last replenishment, the process is finished, which lasts altogether from five to six hours.

After the charcoal has been consumed, the temporary part of the furnace is pulled down, and the iron collected at the bottom of it is taken out with a long forceps, carried to a small distance, and beaten with large wooden clubs. During this operation a great quantity of scoriæ are seen running

[1] This and other processes quoted are from Buchanan.

from the porous mass of iron. When the red heat is nearly over, it is cut into three pieces. In this state it is very porous, and worse in appearance than any crude iron of European manufacture. To prepare it for the market, it is several times heated to whiteness, cut into thirteen pieces of about two pounds each, and hammered into cylindrical pieces of eight inches in length. It is in this state a good soft iron, answering all purposes for which it is wanted in cultivation and building. The maund of this iron (twenty-seven pounds) is sold for about two rupees.

In order to convert the iron into steel, each piece is cut into three parts, making fifty-two in the whole, each of which is put into a crucible, together with a handful of the dried branches of tangaḍi (*cassia auriculata*), and another of fresh leaves of vonangadi (*convolvulus laurifolia*). In some parts the iron is heated, hammered and reduced into pieces of eight inches long, two inches broad and half-an-inch thick, before putting into the crucible. The mouth of the crucible is then closely shut with a handful of red mud, and the whole arranged in circular order, with their bottoms turned toward the centre, in a hole made on the ground for the purpose. The hole is then filled up with charcoal, and large bellows are kept blowing for six hours, by which time the operation is finished. The crucibles are then removed from the furnace, ranged in rows on moistened mud, and water is thrown on them whilst yet hot. The steel is found in conical pieces at the bottom of the crucibles, the form of which it has taken. The upper or broader surfaces often striated from the centre to the circumference.

In some crucibles half of the iron only is converted into steel, and others are found empty, the smelted metal having run through a crack in the crucible. This is smelted again and sold for making fireworks. The conical pieces are sold at the price of 100, or 15 lbs. per about Rs. 3½, or the maund of 27 lbs. per Rs. 5 to Rs. 5¼. Sometimes they are heated again and hammered into small bars of four or five inches long.

It is probably not quite indifferent what crucibles are used in this operation : at all events they must be able to stand a strong fire. The loam employed for these crucibles is of a brown red colour, and is probably derived from the decomposition of the greenish slaty rock of the neighbouring hills. It is of an earthy appearance and crumbles between the fingers ; mixed with white sand and some shining particles : it has no earthy smell when breathed upon, nor effervesces with acids. From this the finer particles used for crucibles are separated by water, which keeps them suspended for some time, during which it is drawn off and left to deposit them. The dried sediment of many of these washings is compact, has a liver-brown colour, with some shining particles ; of the consistence of chalk ; a conchoidal fracture, feels soft and soapy, and takes a polish from the nail. It makes a pretty good brown paint. Of this the crucibles are made, by moistening it and mixing it with the husks of rice. It is then dried in the open air.

The stone used in the construction of the fire-places of the iron and steel furnaces is called baḷapam by the natives—a name applied to all stones of the magnesian order, which have a soapy and greasy feel, and little hardness.

The principal point of making steel by fusion seems to consist in the exclusion of atmospheric air from the crucible, and the use of fresh vegetables instead of charcoal, by which means it is probable a higher temperature is obtained than could easily be procured by the use of common charcoal. Hence the iron is more certainly fused and at a smaller expense. The grain of the steel is much finer than that of the ore ; but there still appear spots which are not well fused.

An instrument maker in England, consulted by Dr. Heyne regarding wootz or Indian steel, expressed the following opinion:—

"In the state in which it is brought from India it is not perfectly adapted for the purpose of fine cutlery. The mass of metal is unequal, and the cause of inequality is evidently imperfect fusion ; hence the necessity of repeating this operation by a second and very complete fusion. I have succeeded in equalizing it, and I now have it in a very pure and perfect state, and in the shape of bars like English cast steel. If one of these is broken by a blow of a hammer, it will exhibit a fracture that indicates steel of a superior quality and high value, and is excellently adapted for the purpose of fine cutlery, and particularly for all edge instruments used for surgical purposes. A very considerable degree of care and attention is required on the part of the workmen employed in making steel ; the metal must on no account be over-heated, either in forging or hardening ; the fire ought to be charcoal or good coke.

"The art of hardening and tempering steel is admitted, by all who have attended to the subject, to be of vast importance ; the excellence of the instrument depending in a great measure on the judgment and care with which this is performed. I find the Indian steel to be extremely well hardened when heated to a cherry-red colour in a bed of charcoal dust, and quenched in water cooled down to about the freezing point. In the process of tempering, a bath of the well-known fusible mixture of lead, tin, and bismuth, may be used with advantage ; linseed-oil will also answer the purpose, or, indeed, any fluid whose boiling point is not below 600 degrees. The temper is to be ascertained by a thermometer, without any regard to the colours produced by oxidation. It is worthy of notice, that an instrument of Indian steel will require to be tempered from forty to fifty degrees above that of cast steel. For example, if a knife of cast steel is tempered when the mercury in the thermometer has risen to 450, one of Indian steel will require it to be 490 ; the latter will then prove to be the best of the two, provided always that both have been treated by the workman with equal judgment and care.

"Upon the whole, the steel of India promises to be of importance to the manufactures of this country. But the trouble and expense of submitting it to a second fusion will, I fear, militate against its more general introduction. If the steel makers of India were made acquainted with a more perfect method of fusing the metal, and taught to form it into bars by the tilt hammers, it might then be delivered here at a price not much exceeding that of cast steel."

Steel is made especially in Heggadadevankote, Malvalli, Kortagiri and Madgiri taluqs. Steel wire drawing is performed at Channapatna for the purpose of providing strings for musical instruments, and of a quality which makes the wire sought after throughout Southern India.

The mode of preparing the steel before it is drawn into wire is by taking any quantity and heating it in a charcoal fire until it is red hot; when it is taken out, beaten into a long thin plate upwards of an inch in breadth, and rolled up into an oval or round form, leaving a small space between each of the folds. It is then put into the fire again, well heated, and hammered out as before. This process is repeated eight times, by which the weight of the steel is reduced to one-fifth of the original quantity.

When this is done it is ready for being formed into wire, and is again heated and beaten into slender rods, with a stroke alternately on either side, which gives them a wavy appearance. The rod being heated again is stretched round a wooden post, and then drawn through a small hole in a plate of common steel into wire by means of pincers. In this plate there are several holes of various dimensions for the purpose of gradually reducing the wire to the size required. After it has been once drawn, it is necessary to heat it again before it can be drawn a second time, which is done through a hole somewhat smaller than the former one. It afterwards requires no further heat, but is drawn eight or ten times more until it is sufficiently fine, and this is partly ascertained by the sound it gives when struck by the finger on being stretched out. At the time of drawing it through the plates a small quantity of oil is applied to it to make it pass easily.

The following are statistics, so far as available, of the annual quantity and value of iron smelted in the Province. Shimoga District produces the greatest amount, followed by Chitaldroog, Kolar and Kadur Districts. In the other Districts the following taluqs are the principal seats of the industry:—Magadi, Chiknayakanhalli, Gubbi, Heggadadevankote, and Malavalli.

Year.	Quantity produced, Maunds of 24 lbs.	Value in Rupees.
1881–82	21,203	45,214
1882–83	33,815	78,834
1883–84	47,516	79,148
1884–85	47,103	64,035
1885–86	41,117	59,638
1886–87	21,882	45,009
1887–88	22,532	42,734
1888–89	21,910	46,197
1889–90	21,099	39,226
1890–91	17,318	29,999
1891–92	12,671	23,188

The industry seems thus to be on the decline, local manufactures being driven from the field by the cheaper imported articles from Europe turned out on a large scale with the aid of machinery. But with the view of developing this important source of wealth, the Government in 1890 offered liberal concessions to a native gentleman who had studied the subject for many years, and had visited most of the iron-producing countries of Europe, and who proposed to start ironworks in the Malavalli taluq on an extensive scale on the most approved modern principles. Iron ores from Government land being now free to al, it was agreed to guarantee such freedom for fifty years to the new industry, without creating any monopoly of the article in its favour. A similar guarantee was to be given for twenty-five years against the imposition of export and import duties which do not at present exist. As regards the supply of wood fuel—the most important requisite of all—it was proposed to give it for the first ten years free of seigniorage, and during the second and third decades at Rs. 1 and 2 respectively per acre of fuel tract felled. The fellings were to be restricted to tracts carefully selected, so as to benefit the health of the neighbourhood and not to prejudice the climate, and so situated with regard to the railway and large centres of population that the fuel in question had no present marketable value. The fellings, moreover, were to be confined to small detached blocks aggregating five square miles per annum, thus making impossible the clearing of any continuous large area; and even in such blocks the more valuable timber-trees of the reserved kind were to be left standing, as well as all fruit-trees in bearing. A block once worked was not to be touched for twenty years, thus allowing ample time for regeneration by natural growth, which it was estimated in fifteen to twenty years would fully equal the original stock. It was also proposed to establish a plantation on half a square mile, to be clean felled each year, in special eligible situations. These yearly accretions of half a square mile of well-stocked plantations would, it was calculated, add to forest reserves valuable wood, with an admixture of sandal, equal in quantity to as much as could now be obtained from five, ten, or even more square miles of the present scrub. It was at the same time provided that the fuel that was collected must all be used directly and exclusively on the new industry; the quantity actually taken therefore would be strictly proportionate to the extent of the iron works actually carried on. The concession was to be held open for two years, and if not availed of by that time was to lapse.

For some reason this promising scheme, calculated to confer manifold benefits on the country, has hitherto remained dormant. A

further subsequent proposal in connection with it was the construction of a line of rail from near Maddur to Sivasamudam, a survey for which has been made. This would greatly reduce the cost of transit. Possibly a number of smaller local works, like those as in some countries of Europe and America, might be found to suit the conditions of the problem better than large central ones.

Brass and Copper.—The manufacture of brass and copper water and drinking vessels is to a great extent in the hands of the Bhogars, who are Jains, some of the chief seats of the manufacture being at Sravan Belgola and Sitakal. Brass is also used for making lamp stands, musical instruments, and images of the gods; and bell metal for the bells and gongs used in temples and in religious services, and by mendicants. Hassan and Tumkur Districts produce the largest number of articles.

Manufactures.—The total value of manufactures is thus stated for ten years. The figures apparently include textile fabrics, oils, sugar, coffee, and wooden or metal articles. They do not pretend to be strictly accurate, but serve to show a decided increase in the annual value of manufactures, which perhaps would be still clearer if later statistics were available :—

	Rs.		Rs.
1881–2 ...	5,391,246	1886–7 ...	6,766,848
1882–3 ...	5,030,449	1887–8 ...	7,979,668
1883–4 ...	5,668,206	1888–9 ...	9,334,965
1884–5 ...	7,921,696	1889–90 ...	14,541,774
1885–6 ...	7,501,438	1890–91 ...	9,766,390

The following statement shows the proportion in which each District contributes to the totals of the last five years :—

District.	1886–7.	1887–8.	1888–9.	1889–90.	1890–1.
	Rs.	Rs.	Rs.	Rs.	Rs.
Bangalore ...	2,468,636	2,732,110	4,355,500	3,977,170	3,896,653
Kolar	939,280	1,025,385	1,035,325	1,091,940	1,188,150
Tumkur	245,873	329,384	448,320	359,822	388,379
Mysore	694,845	770,060	428,370	698,221	472,425
Shimoga	439,974	285,588	273,860	524,476	393,530
Hassan	186,118	292,504	341,589	6,126,500	1,547,996
Kadur	1,571,592	2,213,787	1,474,251	1,234,870	1,444,191
Chitaldroog ...	220,530	330,850	977,750	528,775	455,066

Textile Fabrics.—These are of cotton, wool and silk, with a few from fibre. The following are the only years for which I can obtain complete statistics of the annual estimated value of such fabrics :—

	Cotton Fabrics. Rs.	Woollen Fabrics. Rs.	Silk Fabrics. Rs.	Other Fabrics. Rs.
1881–2	2,118,490	266,525	161,800	32,470
1882–3	1,752,400	330,060	157,550	19,480
1883–4	1,733,340	413,950	136,500	38,124
1884–5	2,712,799	251,630	107,500	67,556
1885–6	1,853,082	203,125	52,500	64,356

These figures do not include the value of raw materials sent out of the Province for manufacture. Raw silk especially is largely exported to various parts in Southern India.

Cotton.—The spinning of cotton into yarn or thread is the occupation of large numbers of women of the lower orders. But before the cotton is ready for the spinning-wheel, it is cleaned or separated from the seed by passing through a rude gin, and then, as it is too lumpy for spinning, it is fluffed up with a bow, which is the special occupation of a class of Musalmans called Pinjari. It is then carded into rolls handy for the spinner. The wheel is turned by means of a handle with the right hand, whilst with the left, which holds the cotton, the thread is spun on to the reel. After the bobbin is full, the yarn is rewound on to a swift. This is done by placing the axle of the swift perpendicularly on the ground, and keeping it in rapid motion by a touch with the third and fourth fingers of the left hand. The thread is then reeled off on to a bigger reel, and finally into a large skein, by passing round five small stakes set up in the ground in the form of a square. The skein is next dressed for the loom. The requisite number of threads is fastened firmly to fixed points, and being separated by small sticks, is supported by cross sticks. The cleaner then takes a brush of cocoanut fibre, and dipping it in a preparation of flour and water, passes it steadily up and down the entire length of the skein, using at the same time one of the small dividing sticks to facilitate the operation.

The loom is placed over a kind of well or hole, large enough to contain the lower portion of the machinery, which is worked on the pedal principle, with the toes, the weaver sitting with his legs in the hole for the purpose. The combs are supported by ropes attached to beams in the roof, working over pulleys, and stretching down into the well to the toes of the weaver. In his right hand is the shuttle, which contains the thread, and which, passed rapidly through the spaces created by the combs, forms the pattern. The principal comb is held in the left hand. As the cloth is manufactured it is wound on the beam by slightly easing the rope on the right hand and turning round the lever.

Particulars will be found under each District, in Vol. II., of the

cotton fabrics manufactured in the various localities. In addition to the cotton stuffs used for clothing, the principal are tape for bedding, carpets or rugs, tent cloth, cordage, &c.

Of *Woollen fabrics* the *kambli* or camblet is an indispensable article of covering for almost all classes. Its manufacture is a characteristic industry, more especially of the Chitaldroog and Kolar Districts, and of Mandya and Hunsur in Mysore District. For the finest kinds, made only in Chitaldroog District, the best of which are of very high value (see Vol. II) and rarely made except to order, the fleece from the first shearing must be used. This is taken from the sheep when about six months old. Every successive fleece becomes coarser and does not increase in quantity. The wool is commonly black, and the deeper this colour the more valuable the wool is reckoned. The fleece is shorn twice a year, in the second month after the shortest day, and in that which follows the summer solstice. Twelve sheep give as much wool as makes a kambli six cubits long and three wide.

Before the sheep are shorn they are well washed. The wool, when it has been shorn, is teased with the fingers, and then beaten with a bow like cotton, and formed into bundles for spinning. This operation is performed both by men and women, partly on the small cotton wheel and partly with the distaff. Some tamarind-seeds are bruised, and after having been infused for a night in cold water, are boiled. The thread when about to be put into the loom is sprinkled with the cold decoction. The loom is of the same simple structure as that for cotton weaving. The new-made cloth is washed by beating it on a stone ; and when dried it is fit for sale. The high price of the finer kinds is thus evidently owing to the great trouble required in selecting wool sufficiently fine, the quantity of which in any one fleece is very small.

The *carpets* of Bangalore are well known for their durable quality, and for the peculiarity of having the same pattern on both sides. The old patterns are bold in design and colouring. The pile carpets made in the Central Jail from Persian and Turkish designs are probably superior to any other in India. In connection with Bangalore carpets the following interesting remarks and testimony by Sir George Birdwood may be quoted from his sumptuous work[1] prepared for the Austro-Hungarian Government :—

The decoration of textile fabrics was at first extremely ritualistic, and pre-historically it would seem to have originated in tatooing, from which the rich symbolical vestments worn by kings and priests have, in great part of the world, been obviously derived. The practice was once

[1] Entitled *The Termless Antiquity, Historical Continuity, and Integral Identity of the Oriental Manufacture of Sumptuary Carpets.*

universal and is still widespread, and where it yet survives is invariably ritualistic, indicating the relation of those so "stigmatised" to their tribes and tribal divinities. . . . Already at the time of the composition of the Iliad and Odyssey these textiles had acquired the ritualistic Euphratean types by which they have ever since been predominantly characterised throughout Central, Southern and Western Asia, as also in their passage through Phœnicia and Phrygia into Europe.

[The author considers that the coloured slabs and other decorations discovered by Layard in the ruins of Nineveh and Babylon] all incontestably prove that, in design and colour, the carpets woven in Hindustan and Central Asia to-day are the self-same carpets as were used for awnings and floor covering in the palaces of Sargon, Sennacherib, Esarhaddon, and Sardanapalus, "the great and noble Asnaper" of the Book of Ezra. The stone slab from Koyundjik [palace of Sennacherib, B.C. 705–681], and the door sill from Khorsabad [palace of Sargon, B.C. 722–703], are palpably copied from carpets, the first of the style of the carpets of Bangalore, and they were probably coloured like carpets.

The wonderful carpets of Bangalore probably approach in their bold scale of design and archaic force of colouring nearest to their Euphratean prototypes. . . . The Italianesque style introduced in the treatment of modern Persian carpets, and, with local modifications, of the Masulipatam and other denominations of Indian carpets, if a departure from the traditionary Euphratean mode, is yet undeniably pleasing, and on account of its broken patterning and generally diffused colouring, better adapted to carpets intended for European rooms, where they are overcrowded and overshadowed by the furniture, than the severely co-ordinated designs and immense masses of clearly-defined, deep-toned colours of the carpets of Ushak, Koula, and Bangalore.

Notwithstanding, however, the sweet charm of the Abbasi Persian carpets of modern trade, the palm for pre-eminent artistic merit above that of all other denominations of Oriental carpets now manufactured for merely commercial gain must be awarded to those of Masulipatam and Bangalore, to the former for their perfect adaptability to European domestic uses, and to the latter on account of the marvellously-balanced arrangement of their colossal proportions and the Titanic power of their colouring, which in these carpets satisfy the feeling for breadth, and space, and impressiveness in State furniture, as if they were indeed made for the palaces of kings and the temples of the gods : and these Southern-Indian carpets, the Masulipatam, derived from the Abbasi-Persian, and the Bangalore, without a trace of the Saracenic, or any other modern influence, are both, relatively to their special applications, the noblest designed of any denominations of carpets now made, while the Bangalore carpets are unapproachable by the commercial carpets of any time and place.

Silk fabrics, of stout texture and excellent designs, are made, chiefly by Paṭvegárs and Khatris, in Bangalore and at Molakalmuru. Women of the wealthier classes are often richly attired in silk cloths

on ceremonial or festival occasions. These, with and without gold and silver or gilt lace borders, are largely manufactured in Bangalore; the silk and wire used for this purpose are also produced in Mysore. The silk industry is reviving, owing to the cessation of disease in the silk-worms, and silk filature is largely carried on in Closepet, Kankanhalli, Magadi, Chík Ballapur, Tirumakudal-Narsipur and other taluqs. But Bangalore is the centre of the silk trade, where raw silk is prepared in large quantities for the loom and dyed.

Mills and Factories.—But the produce of hand-looms can hardly compete in quantity and price with that of machinery worked by steam. Of recent years mills on a large scale have been established in Bangalore city for textile manufactures.

The Mahárája of Mysore Spinning and Manufacturing Company (Limited), was originally established by a Bombay firm in August 1883, with a nominal capital of Rs. 450,000. It has been assisted by the Mysore Government, which has taken some shares and advanced loans on easy terms for extending the machinery. The mill contains 187 looms and 15,624 spindles, and employs up to 600 hands, of whom more than a half are men, the rest being women, boys and children. In 1888 it paid a dividend of 7 per cent, but none in subsequent years. The following is the quantity and value of work turned out :—

	Yarn.		Cloth.	
	lbs.	Value Rs.	lbs.	Value Rs.
1890–1 ..	1,429,389 ...	519,345 ...	56,115 ...	28,057
1891–2 ...	1,358,080 ...	509,280 ...	281,757 ...	132,073
1892–3 ...	1,609,076 ...	653,687 ...	401,678 ...	220,207
1893–4 ...	1,232,755 ...	462,283 ...	294,393 ...	147,196

The Bangalore Woollen, Cotton and Silk Mills Company (Limited), under the management of Messrs. Binny and Co., of Madras, was started in November 1888. The capital is Rs. 400,000, and the average annual dividend 4 to $4\frac{1}{2}$ per cent. The Government of Mysore holds shares in this concern also. There are 14,160 spindles for cotton, and 26 looms and 780 spindles for woollens. The number of hands employed varies from 500 to 600, a half or more being men. The out-turn of work is as follows :—

	Cotton Yarn.		Woollen Blankets and Jhools.	
	lbs.	Value Rs.	lbs.	Value Rs.
1890–1 ...	1,615,844 ...	608,341 ...	251,862 ...	125,931
1891–2 ..	1,388,785 ...	512,058 ...	182,967 ...	104,795
1892–3 ...	1,481,700 ...	578,443 ...	119,538 ...	64,152
1893–4 ...	1,439,148 ...	558,402 ...	105,348 ...	59,286

A cotton-ginning factory has been established by Messrs. Binny and Co. at Davangere, which is a great mart for that staple. There is also a cloth manufactory at Siddarhalli in Belur taluq.

Dyes.—In connection with the foregoing textile fabrics may be mentioned the dye stuffs used to produce different colours :—

Woollen dyes.—Blues, from indigo ; yellow, from turmeric ; red, from sanders wood and lac ; browns, from popli chakke ; orange, purple, and green, by mixing the primitive colour stuffs ; rose and magenta, from aniline dye ; crimson and dark red, from red-wood and lac ; scarlet, from red-wood and tin mordant.

Silk dyes.—From suringi (*calysaccion longifolium*) are obtained red and crimson, used with two parts of pesti pods by boiling. From kamala powder (*rottlera tinctoria*, Kan. *kapila puḍi*) are obtained the following—blue, for bleached silk, by maceration in cold solution of indigo ; black, by steeping again with alum and iron mordants ; greens, for yellow thread steeped in indigo solution. From safflowers (*carthamus tinctorius*, Kan. *kusumba*) yellow and pink for red thread steeped in indigo solution.

Cotton dyes.—From Indian madder (*rubia munjista*, Kan. *munjista*) are obtained pink, crimson, lake, and orange. Native dyers use it commonly for red colour by boiling with alum. From chay root (*oldenlandia umbellata*, Kan. *chiri veru*) are obtained red, orange, and purple. It is very extensively used for red dye by the native dyers. The process varies to some extent in obtaining the evanescent and permanent colours. From morinda bark (*morinda umbellata*, Kan. *maddi chakke*) is obtained red, by boiling with milk-hedge ashes. The colour is dull, yet it is considered faster than the brighter colours obtained from other substances. The best dye is procured from the bark of the roots of trees three years old. From popli stem (*ventilago madraspatana*, Kan. *popli chakke*) is obtained brown. The bark of the root is used also for orange dye. With chay root it forms a rich chocolate colour, and with galls black ; used by oiling and steeping, with or without alum. From myrabolan (*terminalia chebula*, Kan. *alale kayi*) used with other stuffs, is obtained yellow and black, by maceration and boiling. The three kinds of myrabolans yield, with alum, a good durable yellow, and with salts of iron a black colour, commonly used for tanning purposes. From babool bark (*acacia arabica*, Kan. *mugaḷi chakke*) are obtained buff and fawn, by boiling. From indigo seeds (Kan. *tagasi bija*) is obtained an adjunct for blue dye. From annotto (*bixa orellana*, Kan. *ranga málike*) and from mara manjil (*coccinium fenestratum*, Kan. *mara arisina*) is obtained yellow. From cassia flowers (*cassia auriculata*, Kan. *távarike huvu*) is obtained blue. It is also an adjunct for yellow dye. From cochineal (*coccus cacti*, Kan. *kirimanji hula*) red and scarlet are obtained.

Other dyes.—From indigo (*indigofera tinctoria*, Kan. *níli*) is obtained blue and its shades, green, purple and black, by maceration in solutions. From turmeric (*curcuma longa*, Kan. *arisina*) yellow and orange, by boiling with alum mordant. From sanders wood (*pterocarpus santalinus*, Kan. *patanga*) red, crimson, scarlet, orange, and purple, by boiling with alum or tin ; from poras flower (*butea frondosa*, Kan. *muttugada huvu*) yellow,

green, and orange, by steeping in: with the addition of a little soda it turns to orange. From lac (*coccus lacca*, Kan. *aragu*) red, crimson and scarlet, by steeping. From log wood (*hæmatoxylon campechianum*) red and black, by boiling. From tugra seeds (*cassia tora*, Kan. *tangadi bija*) blue, used as an adjunct to green and yellow. Cassan leaves (*memecylon tinctoria*, Kan. *ulli yele*) are used in red colours by boiling with alum.

Goni.—In many parts of the country, *goni* is a considerable article of manufacture. It is a coarse, but very strong sackcloth, from 18 to 22 cubits in length, and from ½ to ¾ of a cubit broad, and is made from *punḍi*, the *janupa* or *crotalaria juncea.* It is divided into three kinds, which differ in value according to their strength, and to the closeness of the fabric. The same people, who are a particular caste of men, cultivate the plant and carry on the manufacture. After being cut down, the plant is dried in the sun and tied up in bundles, which are taken out as wanted and put in the water, at which time their bands are cut, and the stems being opened out, are kept down to the bottom by stones or mud. According to circumstances they require to be kept in the water from six to eight days. They are known to be ready when the bark separates easily from the pith. It is then taken out of the water, and a man, taking it up by handfuls, beats them on the ground, occasionally washes them until they are clean, and at the same time picks out with his hand the remainder of the pith, until nothing except the bark is left. This is then dried, and being taken up by handfuls, is beaten with a stick to separate and clean the fibres. The hemp is then completely ready, and is spun into thread on a spindle, both by the men and women. The men alone weave it, and perform this labour in the open air with a very rude loom.

Ropemaking from cocoanut fibre, sufficient for agricultural wants, is common in all parts.

Oil-pressing.—This is a very generally followed calling all over the country by the class called Gáṇigas, described in a previous chapter. The oil-mills are in the form of an immense mortar and pestle of stone: in the kind driven by two bullocks the mortar is a block of granite, 6 feet 9 inches above ground, with a pedestal let in to an equal distance under ground. A wooden beam, 17 or 18 feet long, pressing at one end closely against the foot of the mill with a loud creaking noise, which is the well-known indication of the neighbourhood of oil-mills, has an arm projecting upwards at about a third of its length, which is attached to the head of the pestle. The mill is driven by oxen yoked at the farther end of the beam, who pull it round and round.

The different kinds of oil made are :—

Woll ellu, til or gingelly oil, from two kinds of *sesamum*.
Huch ellu, or ram til, from *guizotea oleifera*.
Haralu, castor-oil, from the large and small varieties of *ricinus*.
Kobri, from the dried kernel (kobri) of the cocoanut.
Hippe, from the fruit of the *bassia longifolia*.
Honge, from the seed of the *pongamia glabra*.

The *woll ellu* oil is expressed from *surugana* and *kari ellus*, the same with the *wolle* and *phulagana ellus* of other parts. The first gives the least oil ; but for the table it is esteemed the best of any in the country ; the price, however, of the two kinds is the same. The mill receives at one time about seventy seers measure (2·42 bushels) of *sesamum* seed ; and, in the course of grinding, ten *kachcha* seers measure of water (2·78 ale quarts) are gradually added. The grinding continues for six hours, when the farinaceous parts of the seed, and the water, form a cake ; and this having been removed, the oil is found clean and pure in the bottom of the mortar, from whence it is taken by a cup. Seventy *pakka* seers of *surugana*, or 65 seers of *kari ellu* seed give 2 kachcha maunds (rather more than 5½ ale gallons) of oil. The mill requires the labour of two men and four oxen, and grinds twice a day. The oxen are fed entirely on straw, and are allowed none of the cake, which is sometimes dressed with greens and fruits into curry, and at others given to milch cattle.

The *huch ellu* is managed exactly in the same manner. The seventy seers measure require a little more water than the other *ellu*, and gives 65 seers of oil (or a little more than 4½ gallons). This also is used for the table. The cake is never used for curry, but is commonly given to milch cattle.

The *haralu*, or castor-oil, is made indifferently from either the large or small varieties of the *ricinus*. It is the common lamp oil of the country, and is also used in medicine. What is made by boiling, as described below, is only for family use ; all that is made for sale is expressed in the mill. To form the cake, seventy seers of the seed require only five seers, *kachcha* measure (1·39 ale quarts) of water, and give 60 seers (4·17 ale gallons) of oil, which after being taken out of the mill, must be boiled for half an hour, and then strained through a cloth. The cake is used as fuel.

The following is the process for making castor-oil for domestic use :—

The seed is parched in pots containing about a seer, which is somewhat more than a quart. It is then beaten in a mortar, by which process balls of it are formed. Of these from four to sixteen seers are put into an

earthen pot, with an equal quantity of boiling water, and boiled for five hours, during which care must be taken, by frequent stirring, to prevent the decoction from burning. The oil now floats on the surface, and is decanted off in another pot, in which it is boiled by itself for a quarter of an hour. It is then fit for use, and by the last boiling is prevented from becoming rancid. After the oil has been poured from the seed, the pot is filled up with water, which is again boiled, and next day the decoction is given to buffaloes, by which their milk is said to be remarkably increased. The boiled seed is mixed with cow-dung and formed into cakes for fuel. The dry stems of the plant are also used for the fire. The oil is commonly used for the lamp. It is also taken internally as a purgative; and the Sudras, and lower castes, frequently anoint their heads with it, when they labour under any complaint which they attribute to heat in the system.

Kobri oil is made from the dried kernel of the cocoanut, which is called *kobri*. This oil is chiefly used for anointing the hair and skin. Cakes are also fried in it, and it is sometimes used for the lamp. The mill receives 6 maunds weight of the kobri (almost 93 lbs.), and 11 kachcha seers measure of water (a little more than 3 ale quarts). This produces three maunds (about 7·8 ale gallons) of oil. The natives eat the cake dressed in various ways.

The *hippe* oil, made from the fruit of the *bassia longifolia*, is used for the lamps burned before the gods, being esteemed of a better quality than that of the *ricinus*. The mill takes 70 seers measure, and the seed requires to be moistened with 12 kachcha seers ($3\frac{1}{2}$ ale quarts) of tamarind water, in which 2 seers of tamarinds have been infused. The produce is 70 seers (4·365 ale gallons) of oil. The cake is used as soap to wash oil out of the hair of those who anoint themselves.

The *honge* oil, produced from the seed of the *pongamia glabra*, is used for the lamp; but it consumes very quickly. It is also used externally in many diseases. Take 70 seers, pakka measure, of the seed freed from the pods, add 4 kachcha seers measure of water (1·11 ale quart), and beat them in a mortar into a paste. Then tread the paste with the feet; and, having kept it for two or three days, dry it in the sun. It is then put into the mill, with one kachcha seer (19·6 cubical inches) of water. It produces 40 seers ($2\frac{3}{4}$ ale gallons) of oil. For fuel, the cake is mixed with cow-dung.

Although all these kinds of oil are made as of old, the imported kerosene oil has to a great extent superseded them for domestic use among all classes.

Oil-mills worked by steam have been established at Bangalore by Messrs. Binny & Co. of Madras. There is also an Oil-Mill Company working at Mysore. A combined rice and oil-mill factory has also been established by native agency at Tumkur, where both screw

presses worked by hand and steam machinery are in use. A Bombay firm maintain an agent at Davangere, whose special duty it is to procure oil-seeds for export to that place.

The above account contains no notice of the distillation of sandal-oil, which comes more under the head of perfumery, and is of importance in connection with Mysore, the home of the sandal. The native method of extracting sandal-oil is very different from the European process. Large quantities of sandal-wood roots are yearly bought at the Mysore sandal-wood auctions and exported to France, to be there manufactured into oil, for which the demand is great in certain contagious diseases. A concession was offered to a French firm to erect a factory in this Province for distilling sandal-oil. The oil is also distilled at Mr. Hay's factory at Hunsur.

Soap and candle works, worked by steam, have been set up in Bangalore city, under European management, and the concern, which has been aided by the Mysore Government, is being formed into a Joint-Stock Company. Soap, made from cocoanut-oil, and candles, made from *dúpa* seeds (*vateria indica*), have been manufactured on a small scale at Shikarpur by Amildar Nagesha Rao.

The following are the only figures available showing the estimated value of the oils manufactured in the Province :—

		Rs.			Rs.
1881–2	...	653,184	1884–5	...	539,835
1882–3	...	431,113	1885–6	...	662,176
1883–4	...	578,588			

Glass-making.—This art is principally, if not entirely, applied to the manufacture of bangles or glass rings, worn on the wrists like bracelets by all classes of women. The chief seat of the trade, which is not so extensive as at one time, used to be at Mattod, but some glass is also made at Channapatna, part of which is formed into small bottles.

At Mattod the furnaces are constructed in a high terrace, which is built against the inside of the fort-wall, and are in the form of a dome, or like an oven, eight feet in diameter, and about ten feet in height. The oven is not arched, but contracted above into a circular opening, about 18 inches in diameter, by making the upper rows of stones project beyond those below them. At the bottom of the furnace, in the side opposite to the town wall, is a small opening, through which the fuel is supplied. The crucibles are oblong, and would contain about $5\frac{1}{2}$ Winchester gallons. Having been filled with the materials, they are lowered down into the furnace by the aperture in the top, by

which also the workmen descend. They first place a row of the crucibles all round the furnace, with their bottoms to the wall and their mouths sloping inwards. In this position they are secured by a bed of clay, which covers the crucibles entirely, leaving their open mouths only exposed. Above this row another is placed in a similar manner, and then a third and a fourth. The furnaces vary in size, from such as can contain fifty crucibles thus disposed to such as can contain twice that number. The fuel consists of small sticks, which having been gathered a year are quite dry. A quantity having been put in the bottom of the furnace, the workmen ascend, and some burning coals are thrown upon the fuel. By the opening below, fresh fuel is added night and day, until the time allowed for vitrifying the materials has expired. The fire is then allowed to burn out, and the furnace to cool. Afterwards the workmen descend, and take out the crucibles, which must be broken to get at their contents.

The materials used in this manufacture are: soda, quartz or compact ironstone, compact specular iron ore, and copper.

The soda is gained in the following manner: Some pits about a foot and a half deep are filled with salt earth, and water is poured upon it. The same quantity of water is poured successively upon different portions of salt earth till it is conceived to be sufficiently impregnated with saline matter, which is judged of by its brown colour. This water is then worked into a pultaceous mass with cow-dung, and spread about an inch thick upon a straw mat, and dried in the sun. Another layer prepared in the same way is applied the next day, and for twelve successive days it is kept moist by the addition of fresh portions of lixivium of soda. The large cake is then divided into smaller pieces, which, when quite dry, are piled up into a heap and burnt. The fine ashes which are found along with the more solid pieces are kept separate. The latter are reduced to powder, stored up, and called *saulu sáram* (essence of soda); because they contain the largest quantity of soda.

The quartz (*biḷi kallu*) used is a little iron-shot. *Góru kallu* is an iron ore that comes nearest to compact brown ironstone (hydrate of iron). *Kemmidu kallu*, iron glance, specular iron ore or red oxide of iron, is found in sufficient quantities after heavy rains in a nullah in Budihal taluq. The nullah comes from the north side of a hill which probably contains the ore in rocks. This ore is reckoned best when firm and sound. If red ochre appear in the fracture, the specimen is esteemed inferior to the best kind, in the proportion of two to three. And accordingly a greater quantity of it is considered as necessary in the manufacture of glass.

From these few materials the following kinds of glass are made:—

Bija or *mother glass.*—It is a soft, imperfect, porous glass; and is used only as a substratum or basis to the other kinds of glass. It is made of the

following ingredients :—The ashes which remain when the soda is made, and which, as was mentioned before, are kept apart. If these ashes do not contain many grains of salt, five parts of them are taken ; but if they are mixed with much salt, three parts are deemed sufficient. To these are added of pounded quartz, or bili kallu, one part. These two ingredients are separately pounded and then mixed together, put into clay pots and kept in the heated furnace for eight days. To see whether glass is formed, an iron hook fastened to a long bamboo is dipped into a pot containing the glass materials. If the mass adhering to it be of the consistence of wax, the operation is finished. If not, another day's heat is given.

Red glass.—This is of a hyacinthine colour, penetrated with large round white spots. It is composed of bija 7 parts, soda or saulu sáram 21, and kemmidu kallu 10. All the ingredients are first separately reduced to an impalpable powder, and then mixed. It requires first three days of slow heat, and then seven days of the strongest fire that can be given. If more than the stated quantity of kemmidu be taken, the glass acquires a black colour ; if less, it assumes a lighter shade of red.

Green glass.—This glass has a dark emerald green colour with opaque spots, and is composed of the following ingredients : soda or saulu sáram 21 parts, bija 7, kemmidu kallu $\frac{6}{7}$, and copper filings $\frac{6}{7}$. These materials having been mixed and put into the crucibles, these are properly disposed in the furnace, and a fire is kept up for nine days and nine nights. For the first five days the fuel is added slowly, so that the flame just rises to the aperture ; and afterwards it is not necessary to occasion quite so great a heat as for the frit (bija) or black glass. The copper is calcined by burning it, on the fireplace in the bottom of the furnace, during the whole nine days that are required to make this glass. The saline crust formed on the surface of this glass is considered by the natives as unfit for eating.

Black glass.—This glass is made of 3 parts of saulu sáram and 1 of bija. Four days' moderate heat is enough for obtaining it. The charcoal of the saulu sáram probably gives it the black colour, as it will lose it if the fire be too long continued or too strong. This glass is the least esteemed of all. It is quite opaque and has a close resemblance to enamel. The common salt contained in the soda separates itself from the other ingredients, and is found covering the glass or bija in a firm crust of one inch or more in thickness. It is very fine and white, and used like sea-salt.

Blue glass.—This is composed of 21 parts of soda, 7 of bija, $\frac{6}{7}$ of copper filings, and an equal quantity of powdered kari kallu. For fifteen days and nights, these materials must be burned with a moderate fire.

Yellow glass is made of 21 parts of soda, and 7 parts of native soda (salt earth) from which all the small stones have been picked, but which of course contains a good deal of sand. For fifteen days these are burned with a slow fire. When this glass is wrought up into rings, it receives a bright yellow colour by enamelling it with the melted *calces* of the following metals : five parts of lead, and one of tin are calcined together. Then one

part of *sattu* or zinc is calcined in a separate crucible. The two *calces* are then mixed, and further calcined, until they begin to adhere together. They are then powdered in a mortar. When the ring-maker is at work, he melts some of this powder, and, while the ring is hot, with an iron rod he applies a little of the powder to the surface of the glass.

The yield for each crucible in all cases is the same, except the red and green kinds, which give respectively $1\frac{1}{4}$ maund ($30\frac{5}{16}$ lbs.) and $1\frac{3}{10}$ maund ($31\frac{21}{40}$ lbs.); while the others give only 1 maund or $24\frac{1}{4}$ lbs.

Carpentry and Turning.—The ordinary carpenters are engaged chiefly in making of carts and agricultural implements, with fittings and furniture for the houses of the villagers. In Bangalore and some other large places, cabinet work is turned out of great excellence, copied from English designs Coach and carriage building is also successfully carried on.

The toys for which Channapatna is noted are remarkably well suited for their purpose, and much sought after by Europeans as well as natives. The miniature imitations of native vessels and implements are turned from *hâle* wood, and coated with lac of bright colours, simply applied by the heat of the friction in turning. These toys are of brilliant colours, smooth, and hard, and the colour never comes off. Larger toys, representing various animals, are made from a soft wood like touch-wood, *bhúrige mara*. They are elaborately painted by hand; the birds especially, and some fruits, being very fairly modelled and painted to imitate nature.

The sandal-wood carving, for which Mysore is famous, has already been described above, p 522.

Sugar and Jaggory.—The expression of juice from the sugar-cane is an important industrial operation, the details of which may be described as follows :—

The boiling-house is a thatched hut, about 40 feet long and 20 broad, with a door in front, but without windows. The walls are mud, and stand all the year; but a new roof of very slight materials is put on annually, when the crop is ripe. At one end is a square pit for holding the cuttings of the sugar-cane, and at the other is the boiler. The furnace is partly raised and partly sunk; it is in the form of a truncated cone, and the fuel is supplied from without by an opening in the wall. A small hole for letting out the smoke is placed before the boiler, and has no chimney. The iron boiler is flat, and completely shuts the mouth of the furnace. Before the boiler is a cavity for containing the large cooling jar. The sugar-mill consists of a mortar, beam, lever, pestle and regulator.

The mortar is a tree, about 10 feet in length, and 14 inches in diameter. It is sunk perpendicularly into the earth, leaving one end two feet above the surface. The hollow is conical, truncated downwards, and then becomes cylindrical with a hemispherical projection in its bottom, in order to allow the juice to run freely to the small opening that conveys it to a spout, from which it falls into an earthen pot. Round the upper mouth of the cone is a circular cavity, which collects any of the juice that may run over from the upper ends of the pieces of cane; and from thence a canal conveys this juice down the outside of the mortar to the spout.

The beam is about 16 feet in length and 6 inches in thickness, and is cut out from a large tree that is divided by a fork into two arms. In the fork an excavation is made for the mortar, round which the beam turns horizontally. The surface of this excavation is secured by a semicircle of strong wood. The end towards the forks is quite open for changing the beam without trouble. On the undivided end of the beam sits the bullock driver, whose cattle are yoked by a rope, which comes from the end of the beam; and they are prevented from dragging out of the circle by another rope which passes from the yoke to the forked end of the beam. On the arms a basket is placed to hold the cuttings of cane; and between this and the mortar sits the man who feeds the mill. Just as the pestle comes round, he places the pieces of cane sloping down the cavity of the mortar; and, after the pestle has passed, he removes those which have been squeezed.

The lever is a piece of timber nearly of the same length with the beam. Its thicker and lower end is connected with the undivided end of the beam by the regulator. Some way above its junction with the regulator, a piece of *sujjalu*, which is a very hard wood, is dovetailed into the lower side of the lever; and in this piece is made a smooth conical hollow, which rests on the head of the pestle. The upper end of the lever is fastened to the two arms of the beam by two ropes.

The pestle is a strong cylindrical piece of timber, about four feet in length. At each end it is cut to a point, so as at the upper end to form a cone, and at the lower a pyramid of from twelve to fifteen sides, surmounted by a short cylinder. The cavity in the lever being towards one end, makes the position of the pestle always oblique; so that as it passes round it rubs strongly against the sides of the mortar. Its cylindrical point rubs on the top of the hemispherical projection that is in the bottom of the cylindrical cavity of the mortar.

The regulator is a strong square piece of timber, which passes through the undivided end of the beam, and is secured below by part of its circumference being left for cheeks. It is perforated by eight holes, in the lowest of which is placed a pin to prevent the regulator from falling when the strain is removed. A pin in one of the upper holes of the regulator and another in one of the holes in the thick end of the lever, serve to secure in their place the ropes that bind closely together these two parts of the machine. According as these pins are placed, higher or lower, the relative direction of all the moveable parts of the machine is altered, and the

balance of the beam is so regulated that it goes round without any friction, but yet with its fork closely applied to the mortar. The only frictions in this machine, it must be observed, are at the two extremities of the pestle; and that which is at the lower end is entirely employed in bruising the cane, which is the object in view; still, however, it is a machine badly contrived for the purpose to which it is applied.

When the works and machinery have been prepared for making jaggory, all the proprietors of sugar-cane in the village assemble, and work together a day at each man's field, in rotation, until the whole is finished. A sufficient number of people bring the canes to a man who cuts them into pieces about six inches long, and puts them in the square cavity in the boiling-house. From thence one man supplies the basket of the person who feeds the mill, and who is the third man employed at the works. The fourth man drives the bullocks; a fifth carries the juice to the boiler; a sixth attends the fire; and a seventh manages the boiler. The mill goes night and day; and gives fifty-six pots of juice, containing in all about 218 ale gallons. The bullocks are changed after having expressed three pots, and do no more work that day, having been obliged to go very fast. Two of them are in the yoke at a time.

The cane raised on black mould gives about a fifth part more juice than that produced on sandy soil; but then nine pots of the latter give a hundred balls of jaggory, while it requires twelve, or even fourteen, pots of the former to produce the same quantity. The workmen always put into the boiler as much juice as will yield a hundred balls of jaggory. It is strained into the boiler through a cotton cloth, and there is added to it a proper quantity of lime-water. In a boiler full of rich juice, from cane raised on sandy soil, there is put half a seer of lime-water, or about thirty-four cubical inches; and poorer juice from the same kind of soil requires double that quantity. The boiler full of juice from black mould cane requires five or six seers, which is added by degrees. The boiler performs his operations three times in the twenty-four hours.

When the juice has been evaporated to a proper consistence, it is put into a large pot and allowed to cool for two or three hours. It is then poured into the mould, which consists of a long thick plank, in which a hundred holes are formed, each in the shape of a quadrilateral inverted pyramid. The jaggory, or inspissated juice, is allowed to dry in the mould for four hours; when the plank being turned over, the balls, or rather pyramids, of jaggory fall down. They are dried by placing them on leaves for a day, and are then fit for sale. These balls weigh 1¾ seer, or 1·06 lb. The jaggory thus contains both the

sugar and molasses, and is similar to what in Jamaica comes out of the cooler before it is taken to the curing-house. It is, however, somewhat more inspissated; for which an allowance must be made if we wish to compare the strength of the sugar-cane juice in the two countries. By the foregoing account it requires about 37 gallons of the best juice to make 1 cwt. of jaggory.

The sugar-mills used in the north-east are two cylinders, wrought by a perpetual screw, and two bullocks; but seven times in the twenty-four hours the bullocks are changed. The mill goes night and day; and, by the labour of fourteen bullocks, expresses 7,000 canes, which produce fourteen maunds of jaggory, or seven maunds of raw sugar, equal to $1\frac{1}{2}$ cwt.

This cumbrous and tedious process, with its imperfect results, has been in many parts superseded by the introduction of iron sugar-cane mills, which are expeditious in working and express the juice more completely and with greater cleanliness. This is, in fact, almost the only European machinery that the ryots have adopted.

The Ashtagram Sugar Works were established at Palhalli in 1847, for refining into sugar the jaggory produced by the ryots. The then Commissioner of Mysore, Sir Mark Cubbon, afforded the spirited projectors, Messrs. Groves & Co., every help in his power, and the factory was a source of great public benefit in developing the resources of agriculture in that part of the country. The number of men employed at the works, when in full operation, was about 10 Europeans and 300 natives. The works were afterwards carried on by a Joint-Stock Company. The prize and medal for the best crystallized sugar at the Great Exhibitions in London in 1851 and 1861 were awarded to the Ashtagram Sugar Works; and at the Universal Exhibition in Paris in 1867, where the exhibitors in sugar were numerous and competition great, "honourable mention" was awarded. But the factory has now been closed for many years since the retirement of the proprietors, though the buildings and machinery are still there.

The following were the details of manufacture:—

Cane jaggory is usually in the form of small compressed square cakes, shelving on one side into an inverted cone. This jaggory is sold by the growers of the cane at so much per cake. But at the sugar works it was purchased by weight, in order to render which uniform, a table was prepared fixing the weight of 1,000 cakes at 7 cwt. 6 lbs., and the price was computed at so much per 1,000 cakes.

The jaggory was placed in two large copper caldrons, called "blow-ups," mixed with water, a small quantity of lime, and animal blood, and boiled by steam until the whole was dissolved and attained a certain consistency.

The lime was added to neutralize any acidity which might remain in the jaggory, and the blood combined with the gluten matter contained in the solution and carried it to the bottom. The solution or liquor (as it was now termed) was let into troughs, and underwent a course of filtration through drill bags fixed in machines fitted up for the purpose. This filtered liquor was conducted to a cistern, whence it was pumped up to the top of a large iron cylinder filled with about 20 tons weight of animal charcoal made into grain, through which the liquor had to pass that it might become decolourized. It was then let into a tank, whence it was drawn up by the action of an air-pump into the vacuum pan, where it was again boiled by steam *in vacuo*, and crystallization ensued. After this it was let down into large wooden boxes to cool, and was skimmed and allowed to drain to a small extent. The sugar was now put into machinery, where by centrifugal action and the application of certain liquors, composed of dissolved sugar and spirits, the pure white crystals were entirely separated from the remaining syrup and treacle, and the process was then complete.

The sugar thus obtained was put into a room with a boarded floor, and sorted into three classes according to quality ; that consisting of large clear crystals was called P., or the first sort ; the smaller crystals were termed N., or the second sort ; and the rest K. X., or the third sort. These were now put into bags and ready for sale. The first and second sorts were made entirely of sugar-cane jaggory, and were composed of the early or first boilings, while the third sort was that which was produced from the last boilings, and contained an admixture of selected and carefully prepared date jaggory, of which only a small portion, or about 20 per cent. in quantity, was added at the "blow-ups." The syrup and treacle that were skimmed and drained from the wooden and centrifugal boxes were sometimes again boiled in the vacuum pan and converted into molasses sugar, which, on being drained by a further tedious process, was converted into the third sort of sugar. But more frequently the molasses and skimmings were fermented and distilled for rum.

Date jaggory, as crudely manufactured by the native method, is not capable of being converted into good crystallized sugar. An establishment for the purpose of manufacturing date jaggory more carefully was instituted some years ago by Messrs. Groves & Co. in Banavar taluq. But practical results, as compared with the sugar-cane jaggory, led to the abandonment of the project. The out-turn of sugar from jaggory, manufactured as above, was estimated at 50 per cent. Of the remainder, about 30 per cent. was utilizable for distilling rum, and the rest went to waste. With the machinery, comprising water and steam-power and other facilities, in the Ashtagram Sugar Works, it was reckoned that not less than 2,000 tons of sugar might be manufactured annually. This would utilize 4,000 tons of jaggory, which, at an average price of Rs. 30 per 1,000 cakes, would find the growers of sugar-cane a market for Rs. 170,000 worth of produce at their fields, or

for one-half of what may be grown in the late two Ashtagram taluqs with ease.

A sugar factory has now been established at Goribidnur by Messrs. Arbuthnot & Co. of Madras. There is also a Sugar-cane Plantation Company at Shikarpur, under native management.

The estimated value of the manufacture of sugar is thus stated for five years :—

		Rs.			Rs.
1881-2	...	844,175	1884-5	...	1,430,472
1882-3	...	534,150	1885-6	...	1,873,554
1883-4	...	1,388,918			

Leather-dressing.—A Government tannery and leather factory were long maintained in connection with the Commissariat at Hunsur. Although they have been abolished, the district continues to reap the advantage which they conferred in training workmen after European methods. Tanneries have been established on a considerable scale by Muhammadans near Bangalore. They cure the leather very well, and export it to European markets.

Leather is tanned by the Mádigas at Bangalore in the following way :—

To dress the raw hides of sheep or goats, the Mádigas in the first place wash them clean, and then rub each with the fourth part of a kind of soft paste, made of 6 dudus weight of the milky juice of the *yakkada* (*asclepias gigantea*), about 6 dudus weight (2·426 ounces) of salt (muriate of soda), and 12 dudus weight of ragi *ambali* or pudding, with a sufficient quantity of water. This paste is rubbed on the hairy side, and the skins are then exposed for three days to the sun ; after which they are washed with water, beating them well on a stone. This takes off the hair. Then powder 2 seers (1·213 lb.) of myrobalans, and put them and one skin into a pot with 3 or 4 seers measure of hot water, where it is to remain for three days. The skin is then to be washed and dried.

This tanned skin is dyed black as follows : take of old iron, and of the dross of iron forges, each a handful ; of plantain and lime skins, each five or six ; put them into a pot with some ragi *kanji*, or decoction of ragi, and let them stand for eight days. Then rub the liquor on the skins, which immediately become black.

These skins may be dyed red by the following process : take of ungarbled lac 2 dudus weight (about 13 drams), of *suja kara*, or fine soda, 1 dudu weight, and of *lodu* bark 2 dudus weight. Having taken the sticks from the lac, and powdered the soda and bark, boil them all together in a seer of water (68$\frac{5}{8}$ cubical inches) for 1$\frac{1}{2}$ hour. Rub the skin, after it has been freed from the hair as before mentioned, with this decoction ; and then put it into the pot with the myrobalans and water for three days. This is a good colour, and for many purposes the skins are well-dressed.

The hides of oxen and buffaloes are dressed as follows :—For each skin

take 2 seers (1·213 lb.) of quicklime, and 5 or 6 seers measure (about 1⅓ ale gallon) of water ; and in this mixture keep the skins for eight days, and rub off the hair. Then for each skin take 10 seers by weight (about 6 lbs.), of the unpeeled sticks of the tangade (*cassia auriculata*), and 10 seers measure of water (about 2½ ale gallons), and in this infusion keep the skins for four days. For an equal length of time add the same quantity of tangadi and water. Then wash, and dry the skins in the sun, stretching them out with pegs. This leather is very bad.

A very pretty kind of red morocco is manufactured at Harihar by a set of people called Muchikar.

It is in the first place tanned. The goat skins (for these only are employed) are dried in the sun for one day ; next day they are washed in the river, rolled up and put into a pot, with a mixture (for each skin) of one handful of common salt, as much water, and half of that quantity of the milk of wild cotton (*asclepias gigantea*). After the skins have been soaked in this mixture for four days, the pot is filled up with water, and the leather suffered to remain four days longer in it : the hair now comes easily off the skins when scraped by a piece of broken pot. The leather thus cleaned is laid in the shade, and when dry is rolled up and kept in a house for two or three days, in a place secure from smoke and from insects ; it is then soaked for eight hours in pure water, and scraped with a piece of earthenware till it becomes quite white. Before the leather is dyed it is soaked for one night in a pakka seer of water which has been mixed with a handful of cholam meal (*holcus sorghum*) and warmed on the fire ; in the morning it is taken out and dried with a piece of cloth : when well dried, it is soaked again for half an hour in water with which one seer of tamarinds has been mixed ; it is then spread on a mat and the colour applied.

For the red colour take ¼ kachcha seer of lac (18 drams), alli toppalu (leaves of the *mimecylon capitellatum*) ⅛ of a dub weight, and the same quantity of the salt extracted from washerman's earth (carbonate of soda) : pound these ingredients together, boil ¼ of a seer of water in a place where there is no wind ; put the pounded mass into it and keep it for a quarter of an hour over a slow fire. To ascertain whether it has acquired the requisite consistence, dip a cholam straw into it ; if the liquid does not run down the straw when turned up it is sufficiently done, but if it runs, the boiling must be continued for some time longer.

The leather (previously extended on a mat) is, at three different times, rubbed over with this liquid ; it is then thrice sprinkled over with tamarind water, and lastly it is steeped for five or six days in a liquid composed of 3 seers of water and 1 seer of pounded tangadi bark. Every morning it is taken out, washed a little, and again replaced, till at last it is well washed in clear water and dried : thus prepared, it has a fine crimson colour, and is very soft.

Earth Salt.—The manufacture of earth salt, which was once considerable, has greatly declined. Within five miles of the British

frontier it is prohibited, with the view of preventing smuggling of the salt into British territory. The process is conducted as follows :—

In the dry season, the surface of the earth is scraped off and collected in heaps. In front of these heaps the native salt-makers construct a semicircle of small round cisterns, each about three feet in diameter and a foot deep. The sides and floors of these cisterns are made of dry mud : and each, at its bottom, on the side toward the heaps of saline earth, has a small aperture, with a wooden spout, to convey the brine into an earthen pot that is placed in a cavity under it. The bottoms of the cisterns are covered with straw, and then the saline earth is put in, till it rises nearly to the level of the tops of the walls. Water is now poured on the surface of the saline earth, and, in filtering through into the pots, carries with it all the salt. The inert earth is then thrown out behind the cisterns, and new earth is put in, for impregnating more water. In the meantime the brine is emptied into a cavity cut in a rock, and the evaporation is performed entirely by the sun. The grain of the salt is large, and consists of well-formed cubes ; but it is mixed with much earthy impurity.

Coffee Works.—A very important industry, which has come into existence in recent times, is the preparation of coffee for the European market. The largest works are those belonging to Messrs. Binny & Co. of Madras, at Bangalore, for peeling, sizing, and sorting coffee. During the cleaning season, extending from December to March, about 1,000 hands are employed there, and about 1,500 tons of coffee, the produce not only of Mysore, but of Coorg, the Nilagiris, the Shevaroys, &c., pass through the works. The factory is also engaged in the compounding of artificial manures for coffee plantations. Other works of a similar character, for the preparation of coffee for transhipment to Europe, are carried on by Mr. Hay at Hunsur.

The following figures show the value of this manufacture for five years :—

		Rs.			Rs.
1881-2	..	1,114,488	1884-5	...	3,287,869
1882-3	...	1,567,192	1885-6	...	2,733,207
1883-4	...	1,188,308			

Brick and Tile Works.—The great demand for building materials has led to the establishment recently of a factory for machine-made bricks and tiles, fire-bricks, drain-pipes, &c., in the Bangalore city, by Messrs. Arbuthnot & Co. of Madras.

Paper Mills.—The local manufacture of country paper is quite extinct. A proposal brought forward for paper mills was not carried out solely because other undertakings seemed to promise better results.

TRADE AND COMMERCE

THE land-locked position of Mysore, the mountain barriers which separate it from the surrounding countries on three sides, and the want of navigable rivers, are circumstances unfavourable for external trade. In the time of Tipu all importation was forbidden, with the view of stimulating home production. But owing to the arbitrary measures adopted to bring about this result, the Government itself entering the market as a wholesale dealer, the effect was rather to check the natural growth of trade and to paralyze industry. Although under the Rája's government which followed, the same restriction did not exist, yet commerce was shackled by incredibly vexatious transit duties, to the abolition of which the early efforts of the British Commissioners were directed.

After 1831, the construction of an excellent system of trunk roads throughout the country, leading through the ghats or mountain passes to the surrounding territories and to the chief ports on the Western coast, greatly stimulated traffic. But the most powerful impetus has been given by the railways now in operation, which connect Mysore with Madras and Bombay, and the intermediate Districts, as well as with the whole of India beyond. The proposed line from Arsikere to Mangalore will aid in developing the trade of the western Districts.

The religious festivals, and the weekly fairs or *santes*, are the principal opportunities of trade in the rural districts. The large merchants are chiefly residents in the towns. They employ agents throughout the districts to buy up the grain, in many places giving half the price in advance before the harvest is reaped. By this means a few men of large capital are able to some extent to regulate the market.

Sandal-wood, grain, cotton, areca-nut, coffee and a few other commodities are the principal articles of commerce. The best method of exhibiting the interchange of trade will be to give the imports and exports for a series of years. Though the figures cannot be accepted as altogether correct, they no doubt show roughly the general course of trade, the articles carried to and from the country, and the annual value of the transactions. The means of transport, except where there are railways, are country carts on lines of road, and pack-bullocks or asses in wild and forest tracts

Articles.	1881-82. Quantity Tons.	1881-82. Value Rs.	1882-83. Quantity Tons.	1882-83. Value Rs.	1883-84. Quantity Tons.	1883-84. Value Rs.	1884-85. Quantity Tons.	1884-85. Value Rs.	1885-86. Quantity Tons.	1885-86. Val R
Arecanut ...	1,299	565,876	426	415,898	697	512,200	446	345,443	1,480	1,09
Betel-leaves (bundles)	25,629,350	1,587,400	33,699,550	91,850	2,275,340	134,453	2,469,900	147,015	2,717,000	16
Camphor ...	34	41,925	41	54,250	50	60,950	—	—	—	—
Cardamoms ...	5	19,110	22	38,529	5	25,878	8	27,763	4	1
Chillies... ...	1,434	204,280	1,692	241,975	1,475	306,405	1,568	284,225	1,428	19
Cholam (jowari)	2,356	70,949	2,078	50,250	2,641	93,444	2,727	93,558	2,414	8
Cloves	16	33,845	17	22,300	7	9,755	—	—	—	—
Coarse cloths No.	275,864	391,820	250,000	348,300	1,466,180	4,293,100	175,550	326,080	285,700	60
Cocoanuts, dry	341	69,283	205	58,049	234	63,468	246	67,219	184	12
,, fresh No.	2,196,740	85,412	5,595,500	197,960	583,500	36,846	2,169,000	229,740	3,600,300	11
Coffee	328	246,371	232	172,960	87	63,690	87	66,585	104	7
Cotton	1,147	640,868	1,177	648,968	1,178	584,400	975	544,201	513	27
Cotton thread ...	416	375,963	339	165,250	246	180,250	201	198,126	268	26
Gold ...	—	441,320	—	328,500	—	496,500	—	642,960	—	53
Gram, Bengal	1,964	102,389	2,804	127,340	1,651	92,370	1,756	122,710	2,010	16
,, black ...	1,538	75,538	622	43,770	944	62,730	1,258	96,204	1,234	10
,, green ...	2,495	116,117	1,910	122,774	2,020	99,385	1,962	129,161	2,184	18
,, horse ...	9,343	277,935	4,303	126,197	4,306	152,700	6,077	232,050	2,606	27
Hides ... No.	50,300	45,300	50,000	25,000	52,000	28,500	42,000	28,000	54,000	11
Iron	2,837	554,660	3,154	605,656	3,843	721,450	3,975	773,450	3,937	71
Jaggory ...	1,877	190,472	2,414	225,800	374	35,100	1,483	140,558	1,309	12
Oil, cocoanut ...	161	72,587	189	89,542	99	42,040	116	50,303	160	5
,, gingelli ...	296	99,850	285	126,075	170	50,960	424	142,078	217	7
Pepper	254	184,450	214	155,560	155	100,500	174	128,412	155	14
Piece goods, No.	1,002,692	2,994,765	1,153,300	3,489,000	*	*	1,211,260	4,891,159	2,008,521	4,78
Poppy-seed ...	42	6,186	307	46,080	432	67,480	4,102	16,630	870	9
Ragi	63,860	2,129,705	16,646	1,134,600	15,300	438,900	48.504	1,499,710	34,430	1,59
Rice	38,453	2,717,765	16,769	1,540,415	30,080	2,465,688	25,151	2,268,770	23,072	2,51
,, paddy ...	28,797	1,084,834	47,382	1,218,510	43,792	1,097,800	24,310	1,037,500	29,352	1,59
Silk	—	44,800	142	16,300	109	118,080	111	138,876	108	1,62
,, cloths No.	15,700	143,180	16,730	182,200	6,285	82,900	20,323	238,719	16,915	19.
Silver	6	581,240	8	486,250	8	487,500	8	542,234	7	54
Sugar	222	67,263	329	83,250	303	66,850	347	97,215	399	11
Tamarind ...	188	7,720	270	24,100	607	38,250	2,501	195,335	2,373	16
Tobacco ...	497	247,936	413	83,764	594	195,600	608	247,010	506	32
Togari (dal) ...	3,706	252,838	5,018	310,855	4,628	176,800	4,291	419,157	4,044	41
Wheat	13,537	721,999	15,550	887,030	15,999	985,988	20,943	1,358,308	22,714	1,90

* Included in coarse cloths.

1886-87.		1887-88.		1883-89.		1889-90.		1890-91.	
Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.
1,557	1,030,742	1,633	958,730	1,788	1,014,712	1,076	689,900	1,172	680,639
6,863,000	155,410	7,000,000	120,750	3,831,000	85,454	47,500	112,125	1,854,000	232,449
—	—	—	—	—	—	—	—	—	—
3	24,010	4	24,150	5	22,919	6	19,985	4	20,710
1,410	200,200	1,371	329,845	1,509	337,380	1,400	282,409	1,427	305,948
1,907	79,500	2,172	78,246	5,700	180,400	5,445	137,128	5,783	467,566
—	—	—	—	—	—	—	—	—	—
20,545,800	60,738,050	625,900	780,000	549,953	666,191	690,690	1,184,190	642,900	854,500
708	202,187	643	160,359	653	179,359	618	175,520	826	1,124,473
3,670,707	108,841	4,560.000	107,100	3,305,728	107,006	3,390,000	2,061,137	2,671,000	94,041
133	186,030	117	210.705	112	215,164	111	127,288	2,042	2,445,091
653	415,922	533	295,940	1,088	542,416	1,372	771,849	2,076	786,702
1,237	1,140,270	1,251	1,139,740	1,300	1,175,520	1,211	1,109,090	1,285	1,184,678
—	1,428,800	—	392,416	—	382,200	7	423,860	—	482,360
3,316	242,968	4.101	316,026	5,190	429,341	4,345	354,008	4,229	369,628
3,136	250,647	3,903	309,756	4,404	362,190	4,609	407,141	3,822	383,344
3,035	268,791	4,713	343,073	4,475	337,590	4,186	377,046	4.771	330,481
8,366	177,030	6,436	250,805	6,874	314,520	7,107	500,022	7,920	190,228
45,000	41,000	77,800	103,100	52,000	63,620	—	40,000	58,000	41,000
3,615	712,292	8,052	1,589,736	8,214	1,687,520	1,107,600	1,850,370	9,255	1,801,666
2,228	224,712	4,014	570,452	4,059	528,421	4,112	505,953	4,029	523,562
304	110,258	281	126,000	251	102,630	115	97,588	244	106,488
242	80,210	125	34,746	457	212,568	145	135,543	181	68,758
138	149,750	146	163,478	142	165,262	134	142,598	149	133,108
3,098,690	7,716,700	4,859,800	8,884,000	1,641,830	7,119,600	3,388,297	6,829,820	1,042,430	4,045,490
164	22,697	112	19,645	119	22,246	111	21,961	111	21,983
42,413	1,398,025	42,450	1,220,617	42,637	1,205,920	37,939	1,179,390	31,265	1,127,025
27,330	2,392,906	29,874	2,768,587	28,600	3,315,866	27,474	588,485	28,969	3,252,364
28,382	932,720	32,971	1,440,400	23,784	784,523	31,586	987,956	26,798	1,318,102
116	1,679,560	110	1,655,620	107	1,474,275	113	1,622,550	122	1,738,594
106,131	403,120	105,882	621,500	111,925	664,400	116,390	780,090	12,910	208,400
8	777,200	7	709,632	8	811,180	7	603,580	6	409,960
554	148,054	266	60,405	358	47,616	552	20,523	507	135,137
2,530	226,360	2,265	230,965	2,150	189,408	2,076	178,860	1,834	59,300
1,100	557,800	1,023	497,057	1,118	601,313	989	515,392	1,068	493,703
6,059	437,865	3,501	284,447	2,803	89,365	4,543	381,028	3,845	395,784
23,197	1,876,002	21,686	2,195,065	21,764	2,191,725	20,687	1,027,129	20,813	2,938,958

Articles.	1881-82.		1882-83.		1883-84.		1884-85.		1885-86.	
	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Val R
Arecanut ...	8,266	1,124,040	5,184	2,434,645	4,444	2,620,296	5,498	3,011,545	6,397	3,978
Betel-leaves (bundles)	11,191,210	660,113	1,478,360	56,523	2,707,299	181,825	2,539,586	85,290	4,602,800	109
Camphor ...	—	1,200	—	1,280	1	1,500	—	—	—	—
Cardamoms ...	39	118,500	32	110,506	33	171,998	64	270,405	80	272
Chillies... ...	531	74,864	214	35,305	316	50,850	500	70,425	577	55
Cholam (jowari)	8,181	207,760	7,671	341,540	9,073	68,175	14,300	483,200	2,745	137,
Cloves	1	2,000	—	—	1	1,500	—	—	—	—
Coarse cloths No.	275,864	391,820	3,000	5,500	268,600	797,000	29,360	59,860	6,000	12,
Cocoanuts, dry	383	92,220	201	45,150	275	68,160	216	57,116	291	67,
,, fresh No.	4,773,000	115,267	2,512,100	50,850	1,258,500	46,587	2,273,860	61,779	5,114,000	114,
Coffee	1,909	1,219,197	2,163	1,253,412	2,898	1,156,408	4,407	1,389,340	4,916	3,095,
Cotton	173	70,750	265	116,978	1,029	234,711	260	119,090	24,281	198,
Cotton thread ...	34	33,000	180	150,000	33	32,250	41	39,775	45	43,
Gold	—	80,000	—	80,000	—	100,000	2	200,000	—	564,
Gram, Bengal ..	2,897	193,340	2,454	168,590	1,351	72,510	1,298	83,100	1,125	83,
,, black ...	101	6,800	—	—	998	23,700	—	—	414	39,
,, green ...	488	26,540	564	30,460	813	36,180	544	36,000	442	41,
,, horse ...	13,719	415,998	10,617	330,228	11,739	380,200	7,760	325,300	5,378	290,
Hides ... No.	125,900	127,275	119,400	114,133	105,650	140,600	147,992	136,046	145,200	184,
Iron	179	31,100	148	27,872	159	29,000	70	31,200	236	42,
Jaggory ...	2,702	287,300	2,235	227,700	13,085	856,800	2,116	223,500	6,377	521,
Oil, cocoanut ...	12	5,928	25	11,750	4	2,200	23	8,800	21	7,1
,, gingelli ...	76	28,500	88	25,111	46	15,050	96	38,774	93	35,
Pepper	191	136,160	181	98,620	177	115,825	201	144,900	150	115,1
Piece goods, No.	1,002,692	2,994,765	162,700	462,812	*	*	222,350	665,500	254,200	760,5
Poppy-seed ...	—	—	—	—	71	2,000	—	—	71	8,0
Ragi	37,888	1,263,228	52,970	1,361,926	48,933	1,550,400	20,000	665.250	33,700	1,250,2
Rice	7,280	576,525	31,142	1,696,600	15,052	784,200	22,934	1,944,330	11,472	1,192,7
,, paddy ...	33,559	935,025	51,472	2,147,300	205,950	1,322,075	45,201	1,739,242	45,447	1,843,1
Silk	—	44,800	—	3,000	4	51,000	2	28,000	21	329,0
,, cloths, No.	—	143,180	5,000	50,000	—	—	2,200	21,000	2,300	21,5
Silver	1	96,000	1	96,000	1	96,000	1	96,000	1	96,0
Sugar	104	31,903	39	11,400	64	18,000	1,496	468,060	1,138	354,2
Tamarind ...	1,600	118,525	497	24,700	4,998	337,175	1,116	75,855	1,167	75,5
Tobacco ...	60	29,394	127	38,050	68	23,300	43	13,100	46	15,2
Togari (dal) ...	909	58,600	980	71,466	914	46,290	1,095	99,300	1,221	112 7
Wheat	449	18,930	1,482	79,710	1,768	100,300	1,140	65,100	1,185	96,0

* Included in coarse cloths.

1886-87.		1887-88.		1888-89.		1889-90.		1890-91.	
Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.
5,967	3,760,701	6,993	3,449,455	6,229	3,891,290	6,202	3,838,559	6 308	3,186,138
6,360,500	104,994	4,460,000	121,145	4,662,704	636,492	43,509,214	690,770	41,014,960	971,588
—	—	—	—	—	—	—	—	—	—
77	242,840	98	358,350	106	273,324	81	310,454	113	312,857
919	98,460	830	136,080	1,258	227,595	2,202	368,854	1,069	202,238
22,295	669,000	19,974	479,299	27,433	737,200	32,370	664,951	43,179	1,066,255
—	—	—	—	—	—	—	—	—	—
18,000	28,000	26,000	39,000	32,500	47,861	28,500	44,350	37,200	52,500
460	129,420	458	53,492	931	130,200	6,236	1,497,660	2,269	565,215
4,285,000	137,076	9,995,500	302 042	6,144,999	176,199	7,339,474	380,063	1,196,200	132,457
2,707	2,334,200	6,974	5,647,630	3,660	4,080,000	3,980	4,732,630	3,632	4,354,720
362	187,588	339	157,801	598	318,067	2,091	780,288	442	195,139
301	272,250	252	227,000	303	302,500	678	678,000	684	682,900
—	1,001,245	—	1,063,929	1	2,470,692	—	622,347	—	6,023,562
3,629	247,280	14,430	540,374	2,297	182,852	3,548	260,775	3,375	280,938
1,537	115,287	2,129	177,735	1,662	132,319	2,785	230,010	2,021	241,063
1,949	143,870	4,343	207,991	1,553	120,239	1,867	176,984	1,912	164,550
9,529	394,500	14,230	540,374	7,849	308,214	12,377	717,241	6,102	740,237
280,890	675,906	276,100	333,650	270,219	343,289	189,000	273,500	159,600	200,025
322	61,295	805	203,474	492	113,290	3,692	707,186	3,768	711,041
3,051	542,275	7,045	1,007,045	6,835	1,094,357	8,054	1,086,127	6,876	677,116
126	21 840	49	20,340	41	16,450	45	17,400	45	17,430
236	90,625	355	113,950	236	87,250	68	25,650	69	28,734
131	117,600	123	107,360	167	165,400	150	96,040	150	113,455
205,250	675,000	254,400	772,450	25,500	100,000	40,250	118,000	30,000	67,500
75	10,000	90	15,000	90	15,000	51	9,100	50	9,100
107,772	2,678,700	125,778	3,228,199	96,573	2,592,133	226,310	2,872,785	109,917	4,116,579
53,073	4,348,587	47,188	3,822,881	59,330	5,154,840	42,568	4,341,745	38,246	4,432,700
36,827	1,034,410	43,701	1,729,248	127,822	4,562,056	28,248	3,956,531	113,460	5,114,478
32	460,000	43	649,820	92	1,400,165	97	1,322,500	102	1,391,089
2,000	20,000	3,000	30,000	3,000	30,000	2,500	25,000	102,600	326,000
1	89,600	1	144,000	2	192,000	1	90,240	1	90,240
6,878	634,640	1,453	346,504	1,460	349,504	1,805	533,980	1,471	475,200
1,564	113,910	1,166	118,986	2,298	180,696	1,477	96,480	1,400	115,943
143	69,940	221	130,034	245	140,849	198	139,471	281	117,804
14,081	734,800	9,178	456,401	6,137	370,211	6,340	438,864	3,106	195,703
1,432	109,076	1,462	145,175	1,569	155,400	1,363	132,896	1,508	146,043

The following are the total estimated values of imports and exports for the ten years:—

	Imports. Rs.	Exports. Rs.		Imports. Rs.	Exports. Rs.
1881-2	17,495,608	9,190,729	1886-7	86,536,629	18,971,916
1882-3	13,971,561	11,859,114	1887-8	28,993,093	32,876,214
1883-4	14,470,550	11,534,075	1888-9	27,518,820	18,770,504
1884-5	17,766,503	12,756,192	1889-90	28,423,514	32,284,429
1885-6	21,390,418	16,164,389	1890-1	28,072,520	25,267,151

The detailed statement of the articles included in these figures is contained in the preceding tables.

A great development has taken place in late years of commercial speculations and transactions, as may be gathered from the number of banking and trading Joint-Stock Companies (Limited) registered in Mysore. At the close of the year 1894-5 there were altogether 92 such Companies or Associations, whose aggregate nominal capital amounted to Rs. 4,340,292. Of course this refers only to local Companies, and does not include the Gold-mining Companies, which are all formed in England.

The subjoined statement gives further details as to the Companies:—

Nature of Business.	Number.	Nominal Capital. Rs.	Paid-up Capital. Rs.
Banking and Loans	80	3,619,292	1,958,250
Banking and Insurance	3	105,000	101,100
Trading and Merchandise	3	100,000	84,925
Plantation	1	30,000	22,467
Mills	3	486,000	400,000
Others (one a Dramatic Company)	2	(limited to 36 members).	

The following is a summary of the places in which these Companies are located:—

Mysore	32	Srinivaspur	2
Chik Ballapur	12	Nanjangud	2
Bangalore	10	Chamrajnagar	2
Tirumakudal Narsipur	7	Kolar	1
Seringapatam	5	Gudibanda	1
Sidlaghatta	5	Goribidnur	1
Melukote	3	Shikarpur	1
Tumkur	2	Devanhalli	1
Hassan	2	Mandya	1
Chitaldroog	2		

From 1873 Government servants have been interdicted from holding such posts as Directors, Managers, Agents, &c., of Banks, and required to sever all connection with Companies established in the District in which they are employed. The duties of Auditor have however been permitted, as an exception to the rule, to be performed by public servants, as they are of a temporary character.

WAGES AND PRICES

Wages.—The great development of industries in the last decade, and the extensive scale on which railways and public works of all kinds have been carried out, following upon the loss of population incurred in the famine of 1877–8, have led to much rise in the rates of wages for all classes of work. The following are given as the rates of daily wages ruling in each District in 1893, and they are still advancing:—

	Bangalore	Kolar	Tumkur	Mysore	Hassan	Shimoga	Kadur	Chitaldroog
Skilled labour	8 to 12 a.	10 a. to 1 r.	8 to 12 a.	8 to 12 a.	8 a. to $1\frac{1}{4}$ r.	8 a. to 1 r.	8 a. to 1 r.	8 a. to 1 r.
Unskilled labour	2 ,, 6 a.	4 ,, 6 a.	4 ,, 6 a.	2 ,, 4 a.	2 ,, 4 a.	2 ,, 4 a.	3 ,, 6 a.	4 ,, 8 a.
Cart hire	8 ,, 1 r.	8 ,, 1 r.	8 ,, 1 r.	10 ,, 1 r.	12 ,, 1 r.	12 ,, 1 r.	12 ,, $1\frac{1}{2}$ r.	12 ,, 1 r.

The corresponding average rates in 1876, as stated in the former edition, were—for skilled labour, 4 as. to 1 R. a day; unskilled labour, 2 as. to 8 as. a day; cart hire, 8 as. to $1\frac{1}{4}$ R. a day. The minimum daily wage for skilled labour has thus doubled in the past twenty years in all Districts; that for unskilled has doubled in three Districts and increased by a half in another; the maximum daily rate of cart-hire is one-fourth higher in Mysore District, and a half higher in the three western Districts and Chitaldroog. It is also probable that the hours of labour are generally shorter now than they used to be.

Figures for comparison are not available for any long period back, but in 1876 it was the opinion that the price of unskilled labour had doubled since 1850, and that of skilled labour risen threefold.

According to Buchanan, the wages paid to day labourers in 1800 were:—men, $\frac{1}{3}$ to $\frac{1}{2}$ a fanam, women $\frac{1}{4}$ a fanam; or, in the present currency, about 2 as. to 2 as. 8 p. and 1 a. 4 p. respectively. At the present time (1896) 5 as. is a common rate in Bangalore for men, and 2 as. 4 p. for women.

Of the cost of living some estimate may be formed from the charge per head of dieting the convicts in jail. In 1866–7, a dear year, the rate varied from Rs. 3—4—0 to Rs. 4—6—0 a month. In 1871–2, a cheap year, the rates were—for labouring convicts from R. 1—11—10 to Rs. 2—10—0, and for non-labouring convicts from R. 1—4—11 to Rs. 2—1—2. In 1875, the average was Rs. 2—6—0 per head. In 1890, when a new scale of diet was introduced, the average cost was Rs. 2—8—10 per head. It must be remembered, however, that the

articles consumed in the jails are obtained in large quantities, wholesale.

The maximum daily rations of a labouring ryot, at hard work, may be stated at $1\frac{1}{2}$ seers (3 lbs.) of ragi flour and about $\frac{1}{8}$ seer (4 ozs.) of gram or ballar (bean), with condiments, while the quantity of ragi flour required by other adults varies from $\frac{1}{2}$ seer (1 lb.) to $\frac{3}{4}$ seer per day.

Prices.—There are not sufficient statistics available to illustrate the general rise in prices. Buchanan states that the prices at Bangalore in 1800 were,—ragi, 12 Sultani fanams per kandaga of 200 seers; rice, best sort, $28\frac{1}{2}$, coarse, $66\frac{1}{2}$; wheat, 57. That is to say, ragi was 50 seers for the rupee; rice, 1st sort, 9, 2nd sort, 21; wheat, $10\frac{1}{2}$. These rates seem high, being perhaps unduly raised by the late wars and desolation. Dr. Heyne's prices for different places between Bangalore and Chitaldroog at about the same period, or perhaps a year or two later, vary as follows:—for paddy or unhusked rice from 18 to 73·8 seers per rupee; ragi, 38·4 to 113; jola, 73·8 to 120; wheat, 6 to 24; horse-gram, 11 to 113; Bengal gram 6 to 147·7.

The following comparative statement embraces twelve years past, and gives the average rates for three principal grains:—

Average Prices of Produce from 1881 to 1893, per maund of 80 lbs.

	Rice.			Ragi.			Horse-gram.		
	R.	a.	p.	R.	a.	p.	R.	a.	p.
1881–2	3	1	9	1	7	8	1	4	9
1882–3	2	10	0	1	3	0	1	2	9
1883–4	2	8	0	1	1	6	1	3	10
1884–5	2	13	1	1	8	9	1	10	1
1885–6	3	6	11	1	8	0	1	10	0
1886–7	2	12	8	0	11	10	1	3	10
1887–8	2	12	6	2	3	9	1	4	5
1888–9	3	2	5	0	15	8	1	13	2
1889–90	3	6	11	1	0	3	2	12	0
1890–1	4	2	1	1	6	1	2	1	10
1891–2	4	15	10	1	15	1	2	14	7
1892–3	3	13	9	1	7	1	2	11	3

Regarding fluctuations in prices of produce as influenced by the seasons, the following remarks are extracted from the Annual Reports:

1855–6.—In the Chitaldroog and Nagar Divisions, the season was rather more favourable than in the preceding year. In the Ashtagram Division it was less so, and in Bangalore there was a total failure of the early rains. As, however, there was a fair average fall throughout the country in July,

August, September and October, and as a fourth disastrous season in succession was hardly to be expected, all were sanguine that we were once more to be blessed with an abundant harvest. In this we were doomed to be disappointed; for in November, when a few showers are absolutely necessary for watering the dry crops, there was a total failure of rain, and in the prospect which then became certain of a fourth scanty harvest, prices, already high, at once rose still higher, and grain continued at almost famine rates till the opening of the last monsoon, which in the eastern portion of the Territory set in in a style that had an immediate effect on the market. The long prevalence of these high rates fell very heavily on the non-agricultural classes, but pressed comparatively lightly on the cultivating ryots; for although their crops were scanty and vast numbers of their cattle died for want of forage, yet the prices which they received for what remained of their crops was so high that they were able to pay their rents with ease, and to replace their farm stock.

1856-7.—The season commenced auspiciously, and the rains of the south-west monsoon were for the most part steady and regular. There was, however, a partial failure of the north-east monsoon, in consequence of which the dry crops in some taluqs of the Ashtagram Division were withered up, and the yield of the batayi crops in all the Divisions, more particularly in Bangalore, was much less than in the preceding year. The harvest altogether was below the average, but the prices of all grains were steady and remunerative, and the ryots would have had no serious cause of complaint had there not been a most fatal murrain among cattle which spread havoc through the country.

1857-8.—The season has been the sixth bad season in succession with which Mysore has been afflicted. In the Ashtagram Division it is true that it was less unfavourable than it had been in the two preceding years, but in the other three Divisons it was worse if possible than the previous ones. The south-west monsoon came down in scattered showers and was altogether insufficient and partial. The north-east monsoon was more copious, but still not what it usually is, and altogether insufficient to make up for what had been wanting from the south-west. In consequence of this, a large expanse of land cultivated with wet crops was left untilled in the Bangalore Division. In Chitaldroog the harvest was only one-third of what is considered an average crop. In Nagar the supari gardens are regarded as having suffered lasting damage, except in those favoured spots where the irrigation is derived from lakes fed by perennial springs. In Ashtagram alone the prospects of the ryots were brighter than they had been for some time before.

1858-9.—The season, although not favourable, was on the whole better than the preceding. The south-west monsoon almost totally failed, and gave rise to the apprehension that another bad season was about to follow the five highly unfavourable years which immediately preceded the past; later in the year, however, copious rain fell; all those tanks which were strong enough to stand the rush of water were filled to overflowing, but in many places great destruction ensued.

1859-60.—On the whole, the past season commenced more favourably than the four seasons immediately preceding; the copious showers of the south-west monsoon giving the promise of an abundant crop of dry grain. But unfortunately the hopes then formed were to a great extent disappointed by a considerable defalcation of the rains of the north-east monsoon, on which the wet cultivation chiefly depends, and which are required to bring the dry grain to maturity. The consequence has been a great increase of prices throughout the Territory, without, however, causing serious distress, the wages of labour having risen in about the same proportion.

1860-1.—The season was not a good one. It was not quite as bad as some that have preceded it since 1853, but the almost entire failure of the latter rains caused a very serious loss both in the quantity and quality of the crops. In the Malnad taluqs even the south-west monsoon did not pour down with its usual abundance, and the consequence has been a failure both in garden produce and rice. Many of the wells and streams in those parts dried up so completely as to inconvenience very seriously both the inhabitants and their cattle. In the Chitaldroog Division, the rains ceased abruptly at the end of August, and not a single shower fell in that District during September or October, the most critical period of the season for the crops. In some exceptional parts of the Province, the harvest was very fair in quantity, but these spots were few and far between, with the exception perhaps of those taluqs to the southward, where the wet lands are supplied copiously with water by the channels drawn from the Kaveri and other rivers. Two reasons exist for the non-appearance of actual famine in some parts. The first being the habit which prevails in this country of storing the surplus ragi in underground pits, from which it is withdrawn in times of scarcity, as the grain will keep sound and good for forty or fifty years. The second reason was the extraordinarily high prices which all kinds of produce realized. In fact every article of consumption rose during the latter year in value, and the ryots and garden cultivators were thereby enabled to pay their khists and hire; whilst the poorer classes and labourers received a higher rate of wage than has ever previously been known in Mysore. But the high prices press very heavily on all people of fixed incomes.

1861-2.—The season was decidedly the best for some years past, and had the latter rains been as copious as those of the early part of the season, the ryots would once again have begun to think that the days of abundant harvests which they knew prior to 1853 were about to return. But the Nagar Division did not fare so well as the others. It would appear that as soon as the ryots of Nagar became apprehensive of a short monsoon, they began sowing the rice lands with dry crops. A subsequent heavy downpour in many cases destroyed these also. As compared with former years, high prices continue to rule in Mysore. People have given up hoping for the return of those days when grain that is now 20 seers was sold as low as 60, 70 and even 80 seers for the rupee. The only solution of this state of things is increase of population, and consequent higher prices, the daily

increasing facility of communication, and the decline in the mercantile value of the current coin of the realm. Not even in the most remote parts of the country will a rupee now purchase the quantity of grain which could have been bought with it a few years ago.

1862-3.—In Bangalore the season was considered generally favourable. In Kolar, though the rains were irregular, the outturn of the crops was considered superior to that of any harvest for ten years. In Tumkur the season began favourably with showers in May, but owing to the failure of the rains anticipated in June and July, and the prevalence of boisterous winds, some loss was experienced and the land had in many places to be resown. The latter rains were abundant, and the tanks generally received an adequate supply of water without injury. The yield of ragi was a full average, but there was a partial failure in some of the pulse crops. The grain harvest in Ashtagram was one of the best known for years, but the season was unfavourable to tobacco, supari, chillies and some other products. The season throughout the Nagar Division, as compared with that of the previous year, was generally more favourable, notwithstanding a diminished rainfall, but it varied much in the three Districts and cannot be pronounced to be a good year. The prices of the principal grains were lower than in 1861-2, but are still considered high with reference to those prevailing a few years ago. Cotton was in great demand, the exports to England having completely cut off the supply from Bellary and other cotton-growing Districts, and the price was higher than it has ever been known to be in Mysore.

1863-4.—The dry cultivation in the Nundidroog Division was extensive, and the ragi crops were generally good, though, consequent on the failure of the latter rains, the prospect of an unusually heavy crop was not realized. The grain crop was below the average and the later pulse crops almost entirely perished. The north-east monsoon in November and December completely failed and the cultivation of wet lands was therefore limited. In Ashtagram the season is reported to have been on the whole very similar to that of the preceding year. The whole wet crop throughout the Division was that of a good average year, but the dry crops, except in the taluqs bordering on the Malnad, were as a rule unfavourable, and failed from want of rain, or rather from unseasonable weather, partial showers and sometimes heat destroying the plants. In Nagar the season generally was unfavourable, the rains being scanty and for the most part unseasonable. The latter rains almost entirely failed. Nearly all the tanks were consequently dried up, and the people and cattle suffered much.

1864-5.—In the Nundidroog Division the season was on the whole a favourable one. The paddy crop reaped in November was abundant and made up for a deficiency in the May crop, which suffered from the want of a sufficient supply of water in the tanks. The dry grain harvest was an average one. From the Ashtagram Division the report is not so favourable. In Nagar the season was generally unpropitious, scarcely a shower of rain having fallen in the six months from October to March. After the

first showers in April, a small smooth brown caterpillar made its appearance in a portion of the Division, and in a few days ate up every green thing, the grass assuming the appearance of having been burnt up. Both monsoons were characterized by violent storms of wind and rain which did much damage to public works and cattle. The price of agricultural produce of all kinds is still high.

1865–6.—A year which commenced with abundant rain and every prospect of plentiful harvests, became, as it ran its course, less and less promising, and in its latter months ended in drought, sickness and heavy mortality. The high prices which had everywhere prevailed had been more disastrous to the mass of the people than they have been advantageous to the purely agricultural portion of it. Indeed, the ryots themselves have exported so much grain, owing to the extravagant rates which ruled in the markets in the cotton-growing Districts of Bellary and Dharwar, that the hoarded supply of years which formerly filled their grain pits has been well nigh exhausted, and there has therefore in many places been apparently an absolute want of seed for sowing purposes. Among the officials and the non-agricultural classes there has been much distress, and the failure of the ragi harvest has been a most serious misfortune to the population generally.

1866–7.—The immediate cause of the distress in the past year was undoubtedly the failure of the early rains of 1866 succeeding upon the scanty harvest obtained in the previous autumn. The ryots had moreover to a great extent neglected the provision which it had been customary to make against bad seasons. Grain was largely exported to supply the necessities of districts to the northward, where the cultivation of cotton had in a considerable degree superseded that of food grains. The drought made itself felt more or less throughout the province, but nowhere so severely as in the taluqs lying along the northern and eastern frontiers. Before the month of June the scarcity of food had grown into a famine of an appalling character. The people were driven to feed on the kernel of the tamarind fruit and cotton-seed reduced to flour, and even on leaves and roots. Villages were deserted by their inhabitants, who fled to other parts of the country in search of food, and from the instances that came to notice it is to be feared that deaths from actual starvation were not of rare occurrence. Sickness was speedily engendered by the deleterious food, and cholera, dysentery, and fever carried off large numbers of people. In the absence of any pasturage, the cattle suffered severely. This state of things was fortunately limited to one portion, and that a comparatively small portion, of the Province, but the effects of the drought, which continued till the month of September, when rain fell copiously, were felt in a greater or less degree in every District, and caused much misery and suffering among the poorer classes.

1867–8.—Compared with the condition of things last year, the ryots and people of all classes have reason to congratulate themselves on the seasonable rain and consequent good pasturage. The price of grain has fallen in all Districts 25 and 50 per cent., and even lower. This is especially notice-

able in Chitaldroog District, where 23 seers of ragi instead of 9¼ can now be purchased for a rupee.

1868–9.—The great fall in prices of grain and other produce induced cultivators to give up large tracts of the more heavily assessed land.

1870–1.—The harvest was generally a most luxuriant one, and the price of grain of all kinds fell to a point which brought a full supply of good and wholesome food within the means of the poorest classes. These low prices have, however, been productive of loss to the agricultural classes, who in some instances have experienced a difficulty in the disposal of the produce of their fields without submitting to a heavy sacrifice.

1871–2.—The harvest was generally good, and the prices of grains of all sorts continued to decline. The wages of labour have not as yet been affected by the decrease in the cost of food. The fall in the value of produce has, however, been attended by considerable relinquishment of land, chiefly on the part of speculators, who appear to have taken up land wherever it could be obtained during the period of high prices, and who doubtless in many instances have found it no longer worth retaining.

1873–4.—The year was on the whole not favourable for the crops. During June and July there was an almost total failure of rain. In August and until October rain fell in abundance, but the late rain was also deficient.

1874–5.—Notwithstanding that the year had been a favourable one for agriculture and the harvest good, ragi, the principal food of four-fifths of the inhabitants, was dearer. On the other hand the price of rice and the minor pulses was somewhat lower.

1875–6.—A rainfall only half that of the previous year, and two-thirds the average of the past five years, seriously affected the outturn of crop. To make matters worse, this short rainfall was in many places unseasonable. The south-west monsoon gave nineteen inches, while the north-east yielded only two inches. The eastern Districts, which are to a certain extent dependent on the north-east monsoon rains for a good harvest, suffered more than the westerly Districts, where moderate crops were harvested. The price of food grains ruled high. The great rise in the price of the staple food of the Province pressed heavily on the poorer labouring classes. Owing to want of fodder and scarcity of water, the loss among agricultural stock was very great.

1876–7.—The year marked the commencement of a famine unparalleled in the annals of the Province. Though there was a fair average rainfall during June, the sowing season, it became capricious and most scanty as the year advanced. The north-east monsoon wholly failed. In lieu of the twelve to fifteen inches usual in September and October, one inch was registered at Bangalore in the first week of September, another inch after an interval of two weeks, and again half an inch after a further interval of four weeks. The result was that the dry crops died on the ground after they were half or three-quarters grown ; and the tanks were deprived of their water-supply, on which alone the spring paddy crops depended. The failure of the north-east monsoon completed the destruction to the extent of 80 per cent. of kharif crops in all Districts. Tumkur District suffered the

heaviest loss, but was closely followed by Bangalore and Chitaldroog. Kolar and Kadur held an intermediate position. Hassan and Mysore failed but slightly, and Shimoga was almost untouched. No measures of relief would have been of avail to meet the grave crisis with which the administration had to deal, had it not been for the ready means afforded by the Madras Railway for importing grain into the country. From Bangalore the grain thus imported was transported by bullock carts to every part of the Province, as well as to certain portions of Bellary lying adjacent to the Kolar and Tumkur Districts.

The subjoined table gives the market rates (lbs. per rupee), at which rice (of the second sort) and ragi (the staple grain) were selling on the 31st March 1877 in the several Districts as compared with the average prices in the year 1873-4 :—

		Bangalore	Kolar	Tumkur	Mysore	Hassan	Shimoga	Kadur	Chitaldroog
Rice .	1877	14	15	13	13	13	12	13	12
	1873-4	24½	35	28½	23½	29	29	33½	25
Ragi .	1877	18	17	16	18	16	16	15	15
	1873-4	74½	88½	116	65	109	72	69½	95

1877-8.—The year will be ever memorable in the annals of Mysore as that in which the great famine, which had been growing in intensity since the light monsoon of 1875, reached its height. Early in the season, good, and almost general, rain fell. The prospect of a good monsoon and plentiful harvest, though it could not bring material relief in easing prices, afforded employment and encouraged drooping spirits. But the promise was not fulfilled. June, July and August passed away without the rain that was essential to the very life of the people. Distress increased rapidly and in alarming proportions. Prices rose to such a pitch that in some places in July only seven and eight pounds of grain were sold for a rupee : indeed grave fears were entertained in Chitaldroog that it would soon be impossible to get grain at all. In September there happily occurred a most welcome change in the character of the season. The long-prayed for rain came copiously. Prospects brightened, agriculture quickened, and prices fell. The tanks, though sorely tried by the sudden and heavy fall of rain after the long-continued drought had dried and cracked the soil of their banks, filled and enabled extensive sowings to be made for the Vaisakh or late paddy harvest. The rain, however, was too heavy for some crops, and all anxiety was not yet at an end. Especially in the Nagar Division, where javari is very extensively grown, the excessive moisture when the crops were coming into ear caused the grain to rot and sprout as it stood. Field upon field of the most promising and luxuriant corn were damaged beyond all hope of recovery, and the necessity of continuing relief until another harvest should relieve the pressure was soon recognized. The last month

of the year saw a new cause of great anxiety in vast flights of locusts, an evil that appeared the greater as it was so entirely new and unexpected. Less damage was done by them than the most sanguine could at their first appearance have hoped for, and a good Vaisakh harvest ushered in returning prosperity.

1878–9.—Most providentially the season was exceptionally favourable, and though there were not wanting causes for serious anxiety, the crops, particularly the rice and ragi crops, on which the agricultural prosperity of the country mainly depends, were most bountiful. Although the rainfall was slightly less than that gauged in 1877 it was much more seasonably distributed, and did not, as in the end of 1877, cause damage by copious but untimely fall. A plentiful harvest soon effected a most welcome fall in prices, especially in the prices of food-grains consumed by the people, which were sold at rates within the reach of the poor. The population was thus relieved from the stress of famine and enabled to return to ordinary occupations and again be self-supporting. At the same time prices of agricultural produce did not fall to the low level at which they used to stand, and the agricultural classes reaped the double blessing of large crops and good prices. Live stock, which had been greatly reduced during the past few years, began to recover in numbers, and whether it was from the rich and abundant pasture everywhere procurable, or from other causes, is not known, but the fecundity of the cattle was most remarkable.

1879–80.—The rainfall in tracts other than the Malnad was less than what was gauged in the year previous, but the crops in general throve well notwithstanding. The cereals were all over the Province good, and in some Districts ragi, ballar and horse-gram turned out remarkably well. The only crops that suffered slightly were paddy in the Kolar and Hassan Districts dependent on tank irrigation, and supari in the Malnad tracts, where a very heavy fall of rain produced the rot disease. The prices of agricultural produce fell in the year almost to the level at which they generally stood prior to the famine.

1880–1.—Just at the beginning of the ragi harvest, when but little was cut and the bulk of this most important crop was all but ripe, a great part of the State was visited by a storm of wind and rain of unusual severity, which did very considerable damage to the crops, and was the cause, moreover, of the breaching of a number of irrigation tanks. This was perhaps the only untoward event in an otherwise exceptionally favourable season, and but for that misfortune the harvest would have been singularly bountiful in every part of the Province, except the Kolar District, which alone did not participate fully in the plentiful and seasonably distributed rainfall. As it was, however, the outturn of the harvest was well above the average, and the prices of food-grains were low in proportion.

1881–5.—In 1881 the rainfall was very poor, and the failure of the south-west monsoon gave room for apprehensions of distress, which, however, was happily averted by a good fall of rain in the latter part of the year. In 1882 and 1883 the rainfall was fair, but again in 1884 the south-west

monsoon was a failure more or less throughout the greater part of the Districts of Tumkur, Chitaldroog, Bangalore, Kolar and Mysore. In the Mysore District, except in a few taluqs, nearly the whole of the early crop was lost; the later and more important dry crop throughout the whole of the affected area was in a precarious condition; cattle began to suffer from want of fodder, and prices showed a tendency to rise. The north-east monsoon, however, proved favourable, and was sufficient to save a portion of the standing crops, though insufficient to fill the tanks or to allow of more than one-half of the usual amount of wet cultivation under them. The dry crops in the north-eastern and eastern Districts yielded only a harvest which varied from a quarter to a half of the usual average. On the whole, a harvest sufficient to avert immediate distress was secured. In 1885, again, the unfavourable conditions of the first half of 1884 repeated themselves in a more aggravated form. The south-west monsoon began very well in May and continued to promise fair during that month and June. In July, however, it showed signs of failing, and as the season advanced, the drought became greater and more general till about the end of September. The rain which then fell was extremely scanty. The dry crops began to wither from the long-continued drought. The early crops were entirely lost in parts of Mysore, Chitaldroog and Tumkur. In parts of Kolar and the Maidán portions of Kadur the early rains were so scanty as not to allow of sowings to the usual extent. The tanks everywhere were empty, and no Kartik wet cultivation was carried on under them; and even in the Malnad the rains were insufficient for the paddy crops. In Maidán taluqs the springs rapidly dried up, and much difficulty was experienced as regards drinking water. Fodder for cattle became scarce. Prices began to rise. At this crisis plentiful showers fell all over the Province and dispelled all cause for anxiety.

1886–91.—The rainfall in 1886 was abundant and above the average. In 1887 it was generally fair, but the south-west monsoon was a partial failure in greater part of the Districts of Chitaldroog, Mysore and Hassan. In 1888 the average rainfall was somewhat below the mark, and the Mysore District suffered the most. The season of 1889 was one of general prosperity. Good crops were harvested throughout the country, and towards the end of the year, owing to the apprehended scarcity in some of the neighbouring Districts of Madras, there was a large export of grains. The rainfall in 1890 was below the average. In the Hassan, Shimoga and Kadur Districts the fall was scantier than in the previous year, while in the Bangalore District it was unseasonable. In the Mysore District the mungár crop was saved by the early north-east monsoon, but in the Kolar District there was a general failure of the Kartika crop. In Chitaldroog and Tumkur the fall was on the whole timely and fairly sufficient for agricultural operations.

1891–2.—Though a year of serious famine in most parts of Southern India, in Mysore it was happily a year of only moderate agricultural disturbance, though the unsatisfactory state of the usual monsoon seasons gave cause for anxiety towards the latter part of the year. The Kar rains

as well as the south-west and north-east monsoon rains were almost everywhere below the average.

1892-3.—The year was one of agricultural prosperity. The rains were seasonable, and the total quantity of rainfall in all the Districts was on the whole greater than in the previous year, although in certain isolated tracts of the Tumkur District and in Arsikere and Chanraypatna of the Hassan District wet cultivation suffered slightly from insufficient and scanty rain. In the Malnad taluqs the rains were excessive and slightly damaged the supari crop. On the whole the good rainfall served to relieve the tension in the market and to lower the prices of the principal food-grains, rice and ragi in particular, in all the Districts.

ADMINISTRATION

Under the Early Hindu Rulers

Regarding the ancient forms of government some information may be gathered from inscriptions, but not in much detail. The earliest are the Edicts of Asoka discovered by me, in which we find the Ayaputa or Prince in charge of a provincial government, assisted by *mahámátras*. As Dr. Bühler remarks, "the position of a prince, sent out as a viceroy, was probably not an independent one. The distrust and the jealousy of the father and sovereign no doubt surrounded him with high officials, possessing almost, if not quite, the same powers, in order to watch, and, if necessary, to check him." The prince and the mahámátras issue their orders to the mahámátras of Isila, which possibly represents Sidda in Siddapura, where the inscriptions were found. As to the functions of the mahámátras we have the following statements in the seventh and eighth Pillar Edicts :—"I have also appointed dhamma-mahámátras whose duty it is to occupy themselves with all matters of charity, and their duties extend to men of all creeds, whether ascetics or householders. . . The mahámátras will deal with the various classes in accordance with their several requirements. But the dhamma-mahámátras will occupy themselves both with those, and with all others." They were, in short, high superintending officials, whose duty it was to see that the King's orders and wishes were carried out. The official formula, in addressing the subordinate authorities, began by wishing them health, and went on to say "the Beloved of the Gods (that is, the King) commands thus." The edicts were written out by a *lipikara* or scribe, a representative no doubt of the army of clerks attached to all public offices, and his making use in one place of Kharoshti characters, which are met with only in the extreme north-west of the Punjab, seems to imply that the office hands were liable to transfer to very distantly removed stations.

The next inscriptions in point of date are those of Sátakarni. He, in making his grant, conveys his orders to the *mahávalabham rajjukam*. The rajjukas were officials who are frequently mentioned in Asoka's edicts.[1] Dr. Bühler has shown that rajjuka literally means "the holder

[1] In the 7th and 8th Pillar Edicts he says :—"I have appointed numerous (officers) over the people, each having his own jurisdiction, that they may spread abroad my instructions, and develop (my wishes). I have also appointed *rajjukas* over hundreds

of the rope,"[1] that is, his proper duty was the measurement of the fields with a view to the revenue settlement. And it is curious to learn that this title is represented by the modern sheristadár, a corruption of the Persian *sar-i rishta dár*, he who holds the end of the rope.[2] The sheristadár is generally the chief native official in a Commissioner's or Collector's office (and popularly supposed, in another sense, to be the one who pulls the strings). In the taluqs of Mysore he is next to the Amildar, having charge of the treasury and the revenue accounts. From this we may perhaps infer the standing of the rajjukas, and trace the identity of Indian executive appointments from the earliest to the latest times.

Coming down to a later period we find the Mahá Pradhána, Sarvádhikári, or prime minister at the head of affairs, under the Rája or King, with whom was generally, when of sufficient age, associated the Yuva Rája, or heir-apparent to the throne; and a number of other mantris or counsellors assisted in the deliberations of State. Many of these were Mahá Maṇḍalesvara or high nobles, the hereditary chiefs of principalities. The State was divided into several large provinces, each placed under a governor, generally styled the Daṇḍanáyaka or Dannáyaka, who seems to have combined civil and military functions, and in newly acquired territories was often a *senádhipati*, *chamupati* or general. He exercised control over the *sámanta* or feudatory chiefs within his jurisdiction (the pálegars of later times), whence he had the title of Mahá Sámantádhipati. The title of Heggaḍe or Pergaḍe seems to have been sometimes borne by the provincial governors.

For revenue matters there was a considerable body of *karnams* or revenue accountants, who were no doubt chiefly Brahmans, as at present. The excise appears to have been either farmed out, or managed by an agent appointed by government, and is referred to under the different heads of *hej-junka* or *perjunka*, that is the large sunka, or custom dues on the chief articles of trade, and the *kirukula*, or miscellaneous duties on articles in which the transactions were small. There is often mention of another official under the name of *oḍḍa byavahári* and *oḍḍa rávula*, whose functions are not clear, but

of thousands of living beings, and they have been ordered by me to instruct the faithful." In the 4th Edict the King refers to their appointment in a singularly quaint manner, as follows:—"Just as, after confiding a child to a skilful nurse, a man feels secure, saying to himself, 'a skilful nurse sets herself to take care of my child,' so have I appointed these *rajjukas* for the happiness and prosperity of my subjects." *See Ind. Ant.*, xviii. 9, 307; also *Ep. Ind.*, II. 253, 271.

[1] *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, xlvii. 466.

[2] J. Beames, *J. R. A. S.*, July 1895, p. 661.

seem to have been something like those of a commissariat agent for the army.

The chief divisions of the country had each their revenue value affixed to their name. Thus we have invariably the Banavase Twelve Thousand, the Nolambavádi or Noṇambavádi Thirty-two Thousand, and the Gangavádi Ninety-six Thousand; also the Punnád Ten Thousand. Sometimes the numerical designation alone was used, without naming the country. Thus many of the oldest inscriptions speak of the Ninety-six Thousand, and others describe certain kings as ruling the Seven-and-a-half-lakh region. A similar name still survives in that of one of the present taluqs of Coorg, which is called the Yélusávirashíme or the Seven Thousand country. Whether the reckoning has reference to the amount of revenue realized, as seems likely, or to extent of cultivation, or to what other denomination of value, is not certain. The nomenclature still lingers in parts of the Malnad, where I was told by an inferior native official that his jurisdiction extended over fourteen villages, which constituted, according to the custom of the place, a Thousand country. The inscriptions of the Karkala rulers refer to the Kalasa country as being administered by three Hebbár, each the head of a Thousand country. Smaller circles, called such-and-such a Seventy, frequently recur in inscriptions; as well as divisions termed *khampana*, *ventya*, &c.[1]

The chief men of náḍs or rural circles were the *gámunḍa*, a word which, after becoming *gaunḍa*, now appears as *gauḍa*. Their head or chief was the *náḍ prabhu*, and they seem to have represented and been responsible for the agricultural classes, as the *paṭṭaṇa swámi*, *paṭṭaṇa sheṭṭi* or town mayor was for the mercantile and industrial classes.

The Village Twelve.—The constitution of the village corporation, the unit of the body politic, and basis of administration at all times, is thus graphically described by Wilks:—

Every Indian village is, and appears always to have been, in fact, a separate community or republic; the gauḍa or paṭél is the judge and magistrate; the karnam or shánbhóg is the registrar; the talári or sthaliwar, and the tóṭi, are severally the watchmen of the village and of the crops; the nírganṭi distributes the water of the streams or reservoirs in just proportion to the several fields; the jotishya, joisa or astrologer performs the essential service of announcing the seasons of seed-time and harvest, and the imaginary benefit of unfolding the lucky or unlucky days and hours for all

[1] An old report explains the terms thus:—A country yielding 100 nishka (said to be pagodas) is called a shima or kshetra: 18,000 shima form a khampana; 2 khampana, a ventya; $33\frac{1}{3}$ ventya, or 33 ventya and 12,000 shima, a phanichhhásana. The latter name is properly panichchhásira, which means 12,000. The above scale applies it to a country yielding 12 crores of nishka or pagodas.

the operations of farming; the smith, and carpenter, frame the rude instruments of husbandry, and the ruder dwelling of the farmer; the potter fabricates the only utensils of the village; the washerman keeps clean the few garments which are spun and sometimes woven in the family of the farmer, or purchased at the nearest market; the barber contributes to the cleanliness and assists in the toilet of the villagers; the goldsmith,[1] marking the approach of luxury, manufactures the simple ornaments with which they delight to bedeck their wives and their daughters: and these Twelve Officers, styled the Bárabalúti or Ayangadi, as requisite members of the community, receive the compensation of their labour, either in allotments of land from the corporate stock, or in fees consisting of fixed proportions of the crop of every farmer in the village.

In some instances the lands of a village are cultivated in common, and the crop divided in the proportions of the labour contributed, but generally each occupant tills his own field; the waste land is a common pasture for the cattle of the village; its external boundaries are as carefully marked as those of the richest field, and they are maintained as a common right of the village, or rather the township (a term which more correctly describes the thing in our contemplation), to the exclusion of others, with as much jealousy and rancour as the frontiers of the most potent kingdoms.

Such are the primitive component parts of all the kingdoms of India. Their technical combination to compose districts, provinces, or principalities, of from ten to a hundred thousand villages, has been infinitely diversified at different periods by the wisdom or caprice of the chief ruler, or by the vigour and resistance of those who, in every age, country, and condition, have coveted independence for themselves and the power to govern the greatest possible number of their fellow-creatures. Manu's scheme of government recognizes none of those persons who, in later days, were known by the several designations of Wodeyars, Palegars, Zamindars, Deshayis, &c., all in their respective jurisdictions assuming, when they dare, the title of Rája or King. All the officers enumerated by Manu have, in their several scales, at different periods, simply acted as agents of the sovereign; as farmers of revenue contracting with the sovereign for a certain sum and levying what they can; as partisans or chiefs of troops, receiving an assignment on revenues managed by another, or the direct management themselves, for the purpose of defraying the pay of the troops. In these several capacities they may have continued obedient to the sovereign who deputed them; they may have obtained from his favour, or from his

[1] In some parts of the country the goldsmith is not found included in the enumeration of the Twelve, his place being occupied by the poet, a less expensive member of the community, who frequently fills also the office of schoolmaster.

fears, a remission of a part of the sum to be accounted for; they may have rebelled and usurped the whole government, or have established a small independent principality, or a larger; but with regard to the villages or townships of which the principality is composed, they have appeared but in one character, *viz.* the government, the sovereign: a person exercising the sovereign authority on his own account, or by delegation on account of another. The interior constitution and condition of each separate township remains unchanged; no revolutions affect it; no conquest reaches it.[1]

It is not intended to assert that the village in our contemplation may not have produced the Cæsar of his little world; the rights of the inhabitants may have been invaded by the patel, by the palegar ruling over twenty, by the wodeyar ruling over thirty-three, by the collector over two hundred, or by the sovereign of twenty thousand townships; each or either of these persons may have attempted, or have succeeded, or have failed, in persuading or forcing an augmentation of the proportion of money or of grain paid by the township to the State; but conquests, usurpations, or revolutions, considered as such, have absolutely no influence on its condition. The conqueror, or usurper, directly or through his agents, addresses himself as sovereign, or representative of the sovereign, to the head of the township; its officers, its boundaries, and the whole frame of its interior management remain unalterably the same; and it is of importance to remember that every State in India is a congeries of these little republics.[2]

Revenue System.—The adjustment and mode of realizing the land revenue was the great, or almost the only, problem of civil government which formed the subject of legislation under the various dynasties of native rulers, and in this branch of the administration alone, therefore, are any regulations referred to as emanating from the ancient rulers.

With reference to the land settlement of the Kadamba kingdom, the following particulars are given in a report by Mr. H. Stokes.

Kadamba Raya with Gopa mantri and Naga Deva Karnika caused

[1] Every village, with its twelve Ayangadis as they are called, is a kind of little republic, with the patel at the head of it; and India is a mass of such republics. The inhabitants, during war, look chiefly to their own patel. They give themselves no trouble about the breaking up and division of kingdoms; while the village remains entire, they care not to what power it is transferred, wherever it goes the internal management remains unaltered; the patel is still the collector and magistrate and head farmer. From the age of Menu until this day, the settlements have been made either with or through the patel.—*Report by Lieut.-Col. Munro.*

[2] The Village Community of India exhibits resemblances to the Teutonic Township which are much too strong and numerous to be accidental, observes Sir H. S. Maine, whose works on this subject are of great interest.

to be measured,[1] between Nágara khanda and Varada khanda (Shikarpur and Sorab taluqs), all the land within the limits of each village that had been or was fit to be cultivated, and marked its boundaries by stones. In the year Kilaka, Sal. 90 (A.D. 168) Gopa mantri made the bíjavari and assessment as follows :— One grain from each of the *nava dhánya*, or nine kinds of produce (paddy, wheat, hesaru, uddu, kadale, jola, avare, togari, and ellu), being taken to form one nishka, 10 nishka were called a phala or navtakku ; 64 phala, a mána ; 20 mána, a kolaga ; 20 kolaga, a khandaga. But in some places 40 or 60 kolaga formed a khandaga.

For watered land of the best quality, namely, black soil near a river or mountain, red soil, or black mixed with yellow and containing springs, there were three rates,—18, 21 and 9½ (pagodas per khandaga). Black land, suitable for wheat and kadale, paid 1 pagoda for every 9½ mána of seed. Watered land of white soil mixed with sand, near a hill, paid 7 pagodas for every khandaga. Similar land near a river paid 5½. White or red land watered by a well, paid 9 pagodas per khandaga.

A garden containing areca nut, cocoanut, plantains, limes and citrons was called *agama*, and was measured with a rod 18 lengths (*mettu*) of a man's foot, measured so as to take in also half the right foot at the beginning and half the left foot at the end.[2] This rod was called *mána danda*. In the square of such a rod might be planted 3 areca-nut trees, with cocoanuts intermixed ; and for a 1,000 such squares the king's share was 7 pagodas, the other productions being included in the assessment. Of a garden containing vines, sugar-cane, dates, betel-leaf, cocoanut, mango, jack, sampige, ashoka malagi, jessamin and such choice plants, together with areca nut, the produce might be estimated at 25 pagodas, and one-third of this was the king's share. In two of the above rods 3 cocoanut-trees might be planted, and the king's share was half a nishka and 5 nuts on 10 trees.

Of the assessment under the Hoysala kings the same document says : —Under them each cultivator paid to the king one iron *kula* or bar (? ploughshare). This was dropped into a well of quicksilver in the temple of Padmávati at Humcha and became gold. Hence the word *kula* came to be applied to a ryot, and the money paid by him is still called *kulavana*. In the time of the Vijayanagar kings, it is added, the well dried up, and the iron ploughshare was commuted for a payment of one pagoda for every plough. (*See* p. 339.)

[1] With a line of six báhu—each báhu being two cubits—at either extremity and in e middle, for both length and breadth, and the mean of the three measurements aken for each.

[2] The rod used was measured by the feet of Dharadwaja Haritika (perhaps a guru). This corresponds with Sivappa Nayak's standard for the *daya*. *See* farther on.

Under the Vijayanagar Sovereigns.

For the later system of government, under the Vijayanagar empire and the governments which succeeded it in the north of Mysore, the following particulars, greatly condensed, have been taken from the Mackenzie MSS.

It appears that in the time of Krishna Raya and Achyuta Raya the revenues of the Vijayanagar State were first reduced to a regular form, checked by ordinances, and a system of accounts and management introduced, calculated to improve the revenue of the empire gradually in yearly amount without distressing the inhabitants.[1]

In the course of their conquests the kings of Vijayanagar reinstated some of the original rájas in their ancient possessions on submitting to be tributary vassals to them as superior lords. They also appointed some of their own slaves and servants, recommended by their fidelity and abilities, to manage tracts of uncultivated waste country, with instructions to clear away the jungles and to bring the lands into culture, with a view of increasing population, the wealth of the State, and the prosperity of the land by good management. By the royal commands, these governors formed many *Pályams* or *Pálepaṭs*, and new establishments, cleared away the jungle, and recovered the country from the robbers and lawless banditti who infested it, and from the wild people of the hills. Those who established Pályams under these sovereigns were distinguished by the title of *Pálegars* (polygars).

When they had thus settled these Palegars, and appointed various other officers for the management of these woodland countries, they then formed regulations to improve the revenue, and published the Ráyarékas, which fixed the settlement of the revenues, the boundaries, duties and customs, and made ordinances for all other affairs. These were transmitted to the headmen of the towns and náds for preservation as records of this settlement, for reference on future emergencies, or disputes about revenues, boundaries, &c. At the same time, landmarks and stones, inscribed with writings or with symbols, were erected on the boundaries even of every little village. Unto our times the custom

[1] The empire at this period had acquired its utmost extent, by the reduction of several extensive provinces, particularly the northern districts, which increased its revenues in their reign to 81 crores of Avakoṭi chakras or pagodas ; this increase of revenue and territory, it would appear, suggested the expediency of a more general and comprehensive system, better adapted to the various tribes and nations now reduced to one common sway.

The system of letting out the lands in perpetuity, as appears in some instances, prevailed sometime previous, in the reign of Harihara Raya, and perhaps existed long before.

generally prevailed in the Bala Ghat of referring to the Ráyarékas when any doubts occurred on these points.

The words Aṭṭhavaṇe and Síma múlam were applied to the Revenue department. The Military branch was called Kandáchár. The following terms were also used in the management :—

Karnataka ancient names.	Corresponding Musalman names.	Meaning.
Síma . .	Mulk . . .	Great Division or Province.
Gaḍi . .	Táluq . . .	District.
Hóbali, hóbli .	Taraf . . .	Subdivision or inferior district.
Halli . .	Gaam . . .	Ancient village.
Kaluhalli . .	Majara . .	New additional village.
Aramane . .	Huzúr or Mahal .	Presence or Palace.
Samsthán . .	Riyásaṭ, Sarkar .	The Government.
Umbalike . .	Jágír . . .	Rent-free estates, granted as a gift.
Bhatavritti .		Lands given away to Brahmans.
Srótriyam . .		Lands granted in perpetuity, for which the proprietors receive a yearly money rent from the occupiers.
Agraháram .	Inám . . .	Lands or villages granted in charity, generally to Brahmans; or free gift.
Brahmádáyam, Deváḍáyam .		Shares of the crop given to Brahmans.

The following offices were hereditary, and established in all towns and villages, under the general name of A'yagár in Canarese and Bára Balúti in Hindustani :—

1. Shánbhóg, accountant.
2. Gauḍa, headman.
3. Kammára, ironsmith.
4. Baḍagi, carpenter.
5. Agasa, washerman.
6. Panchángi, calendar.
7. Náyinda, barber.
8. Mádiga, shoemaker.
9. Akasále, goldsmith.
10. Talári, watchman of the village.
11. Nírganṭi, watchman of the tanks.
12. Kumbára, potmaker.

The *A'yagár* depended on the financial or revenue branch. The ryots gave them a share, called *nijáyam* and *ardháyam*, of the crop produced in their village; these were for each kapila, bed, kandi or puṭṭi, varying according to regulations established anciently in different parganas. The nijáyam above the Ghats was 4 seers or measures of grain, and the ardháyam 2. *Mányams* or privileged lands were also allowed to the A'yagár, for which they regularly paid the *jóḍi*, a small tax from which none of these official hereditary estates were exempt except the Panchángi.

To the *Shánbhóg*, as accountant of the village, the ryots paid the full

áyam. If he had a share of any charity lands from the inhabitants or from the Sarkar, he paid the jódi to Government : to him and to the head gauḍa the inferior classes rendered their rents or shares of the revenue.

The duty of the *Gauḍa* was to see that the farmers cultivated the land for the *kandáyam* or rent agreed on in the *jamábandi* or annual settlement ; to collect the revenue composed of the different branches, duties, &c., and to pay it to the proprietors of the districts according to the *kist* or agreement ; to adjust all accounts relating to these at the end of the year ; and then to settle the rent of the ensuing year according to the estimate made by the Amildar by order of the Government. But in adjusting these concerns it frequently happened that, the ryots having no access to people in the higher offices, parcels of lands were unaccounted for, and their produce clandestinely secreted by the gauḍas and shánbhógs, which they collusively divided among themselves.[1]

The *Kammár* or ironsmith, and *Baḍagi* or carpenter, had to supply the ryots with ploughs and other implements of husbandry without taking any price for the same. If a ryot wanted to build a house, he must then pay some consideration to these artificers ; but they paid nothing for the public duty, such as ploughs, buckets, &c., for which the *hore-hullu* and *mura-batta* were assigned.[2]

The *Agasa* or washerman, and *Náyinda* or barber, must wash and shave gratis for all the ryots of a village ; the latter also dressed wounds and performed other surgical operations—for this they received hore-hullu and mura-batta. When the washerman delivered the cloths after washing, he received provision sufficient for one day. The washerman paid annually some money to the Sarkar for the rent of the drying-ground.

The duties of the *Pancháńgi* (always a Brahman) were to mark the proper times for sowing the great and small grains in their right season ; also to declare from the calendar the fortunate time for commencing any new undertaking. This Brahman also officiated as priest, to perform the ceremonies of funerals and marriages according to the laws. He must daily attend the headman of the village, and from his calendar read off the day of the week, month and year, the predominant signs and constellations, &c. For these duties he collected the hore-hullu and mura-batta.

The *Mádiga* or chuckler, furnished shoes, ropes, leather buckets, and

[1] The clandestine embezzlements happened from the following causes :—From the Gauḍa and Shánbhóg taking advantage of the timidity of the ryots, who were afraid to discover the frauds of people under whose control they had lived time out of mind, their offices going from father to son. The ryots were so very timid that they were even alarmed to see the peons of the Sarkar.—The Gauḍas having full authority to settle the revenue of the village, and the ryots generally requiring extension of time, particularly when the Sarkar augmented the rent of a village, these gauḍas had it in their power to distress those who displeased them by overrating their proportions and selling their effects and cattle at a reduced valuation, and thus utterly ruining those to whom they entertained a grudge. The ryots for these reasons endeavoured to preserve a good understanding with these officers, that they might not be exposed to extraordinary impositions.

[2] *Hore-hullu* seems to be a bundle of straw : *Mura-batta*, some portion of grain.

other little necessaries for cultivation, for which he was entitled to the áyam, hore-hullu and mura-batta.

The duty of the *Akasále* or goldsmith was to measure the *songuru* or half-share of the crop which the ryots paid to the Sarkar, and to shroff the money collected in the village in payment of the revenue. For any other work done by him he might take payment, but for these the hore-hullu and mura-batta were his perquisites.

The *Talári* was the police officer or kotwal of the inferior villages. Besides the nijáyam and ardháyam, and the mányams allowed for their maintenance to encourage them to a due performance of their duties, the ryots privately bribed them with ragi, vegetables and *conks* (?) in the harvest time, to conciliate their favour and protect themselves from certain inconveniences, such as being forcibly delivered over to travellers to carry burdens to the next stage, &c. The appropriate duty of the Talári also was to watch over the safety of the village, and to be ready to provide forage and conveniences for those employed by the Sarkar. He was responsible for all things stolen within the enclosure of his village: whatever was lost or stolen on the highways, or without the precincts of the town, was to be recovered or accounted for by the Kávalgárs. People of all castes were employed in this station, except in the Chitaldroog country, where only the Boyis or Bedars acted in this capacity.

The *Nírganti's* duty was to attend to the tanks and to shut up, when necessary, their sluices or *túbus* with the stoppers usually fitted for this purpose; in the winter time he must watch carefully on the banks of the tanks to preserve the water. It was his appropriate duty to divide among the ryots of the village what water was requisite for the production of the crop; when the water diminished, he rendered account thereof to the managers, lest he be suspected of disposing of it clandestinely. For these duties he received hore-hullu and mura-batta.

The *Kumbára* or pot-makers were not stationed in every village, one or two being generally sufficient for a hóbli or taraf; he furnished pots for all the ryots of his taraf, and was entitled to áyam in an equal proportion as the other A'yagár. For liberty of exposing his wares for sale to travellers in the markets he paid *chakra-kánike* to the Sarkar.

The above twelve were the village servants; their offices were hereditary, going from father to son; and they were authorized to sell or mortgage their office when in distress.

From 10 to 40 villages were called a *Hóbli* or Taraf, and from 4 to 10 of these constituted a *Gaḍi*, called pargana in the Northern Sarkars. From 10 to 20 of these gaḍis, annexed to a *kasba* or capital town, constituted a *Síma* or country; a name in latter times applied to provinces of considerable extent, in like manner as the *Náds* more anciently. The chief officer of a gaḍi was the Párpattegár, at present an Amildar; of a hóbli, the Náḍiga; of a village, the Gauḍa, in whose absence the Shánbhóg was the chief. The chief Governor or magistrate

of a Síma was an officer of great consideration, distinguished by particular titles, applicable to circumstances under the several States.

The *Sarvádhikári* or *Aṭṭhavaṇe Párpattegar*, the chief director of the Revenue, arranged the forms of accounts, and issued all orders relating to that Department, and for the improvement or increase of the collections; but he could do nothing, even in the most trivial matters, without the Rája's knowledge and permission. In his office the renters of villages settled their accounts. In the time of the Chitaldroog rulers, the chief managers employed the gauḍas to direct the cultivation of the lands, and the revenue was collected by the náḍiga appointed for the hóbli from the Aramane or Palace: the náḍiga, at the end of the year, accompanied by some of the principal Désasts or inhabitants, went to the office of the Aṭṭhavaṇe to clear the accounts of the preceding year, according to the settlement or agreements made in the beginning of the year. These customs were observed by all the Carnatic Palegars above the Ghats. The gauḍas collected the rent from the ryots according to the settlement of the Aṭṭhavaṇe office, and paid it in to the Párpatti appointed by Government. If the managers of the Aṭṭhavaṇe found it necessary to introduce any new regulation, after stating the same to the Rája and obtaining his consent, they transmitted orders under the royal signature and seal to the Párpattegars of the districts for execution.

The *land rent* consisted of that for land sown with one koḷaga of seed, at rates equal to from 3 to 10 Kanthiraya pagodas according to the nature of the soil. Land watered by kapiles was let for a money rent; but for lands cultivated with paddy by means of tanks, the *songaru*, or one-half of the crop, was generally required, without any money, though in some districts the ryots rendered *múguru*, or one-third of the produce, with 2 or 3 pagodas in money for each plough. Waste lands were let to strangers at first for small sums (called *bhúmúla gutta* or *kola gutta*) for a term of years, according to agreement, after which they were annexed to the cultivated tracts and brought under the same management.

Gardens and plantations were numerous in the districts of Madgiri, Sira, Banavar, Chanraypatna, Nagar, and in those adjacent to Seringapatam, from the collections of which (called *ágram*) the Government derived a considerable revenue. In the Mysore country great quantities of areca-nut, and cocoanut; and in Nagar, pepper and other kinds of spices were cultivated in these plantations. These gardens were considered as belonging to the wet land, or *nírávari*, for which the Government collected the rents in some cases from the soil, and in others from a share of the produce. These regulations appear to have been

established of old, so far as 1,000 years ago, as observed in some inscriptions in the Banavar district.

Besides the land rent, there were several heads of customs, duties, taxes, &c., which the nádigas (or tarafdars) collected from the different trades. The inhabitants were divided into three classes—Jiráyati, Bagair Jiráyati and Khushbásh. The *Jiráyati* were those who cultivated the soil; *Bagair Jiráyati* those from whom the Government derived revenue by other means. The *Khushbásh* were those who led a free life, the servants of the Sarkar and others, who were exempted from paying any revenue or taxes.

The revenue derived from the *Bagair Jiráyati* yearly for the privilege of exercising their trades, for rent of the houses (*mane gutta*), &c., according to their stations, was carried to account in the revenue lists under the head of *mane-báb*. The duties paid by the shopkeepers in towns and villages, exclusive of the customs at the several places or kaṭṭes where goods were exported and imported, were included in *angaḍi gutta*. The A'yagár and others who enjoyed lands in consequence of their offices or gifts, in some places accounted for one-third or one-eighth of the produce to the Sarkar, according to the usual custom of these places; this was carried to account under the head of *jóḍi* and *mane-gánike*. In the countries about Seringapatam and Chitaldroog, the toddy of the íchalu or country date was used for distillation, there being few palmyras: the palanquin-bearers, or caste of Bestars, also made arrack from sugar, the ippe flower, and some from the bark of a tree; these people, for permission to sell this spirituous liquor, paid a certain revenue to Government, called *kallali*.

In the *Sunkam* or customs, there were three different heads. Customs on goods imported to be sold at one place were called *sthalá-dáyam*; customs taken for goods in transit through a district were called *márgádáyam*; customs taken for goods exported to foreign countries were called *mámuládáyam*. Under these heads the land customs were collected at the different *kaṭṭes* or custom-houses. All kinds of goods, even firewood and straw, paid these duties, excepting glass rings, brass pots and soap balls. There were no particular regulations for the rates of collection of land customs; the Government farmed out the kaṭṭes to renters, who took various measures frequently for increasing the perquisites of their respective chaukis at the expense of others. For instance, they advanced money to some of the merchants, requiring only one half the duty which was paid by others, thus encouraging them to come by their kaṭṭes, where they paid reduced customs, with a view of inducing others to follow the same route. It is impossible to fix on any certain rate in collecting customs on goods imported. When one farmer

demanded 10 pagodas for 100 loads, another took only 2 pagodas, and their rates widely differed as collected in various places. These farmers, from the collections of the customs on different descriptions of goods and trades, paid the amount of the agreed rent to the Sarkar, reserving the profits, which were more or less considerable according to circumstances.

The butchers, for liberty of purchasing sheep at the first price from the country and selling them in the markets for a certain profit, paid yearly a tax called *kasáyi-gutta*, which was carried to account in the settlement of the jamábandi. The washermen, for liberty to wash and bleach their cloths on the banks of rivers, tanks, &c., paid the tax *ubbe gutta*. In the winter season, a certain class employed themselves in collecting black sand and earth in channels from the hills, from which they smelted iron used for agricultural and other uses. This ore was smelted in a kind of furnace or large fire-stand called *hommai*. For permission of cutting down wood for charcoal and for digging the ore they paid a yearly revenue called *homla gutta*, proportioned to the quantity of iron made in the district.

The Kurubas or weavers of kamblis, and the Juláys or manufacturers of cotton cloth, for liberty to sell their goods to the merchants, paid to the Government a duty for each loom, rated according to the quantity of the manufacture, which formed a separate branch of the revenue called *jakáyati*. The weavers paid no duties to the land customers for the goods they disposed of in their own villages ; but the merchants who transported the cloths from one place to another must first pay the customs previous to exportation. The weavers generally preferred disposing of their goods to the merchants of their own place. In some places the weavers paid a trifling tax, called *kaddivaram*, to the collectors of the sunka. For the privilege of making oil, the oilmakers paid yearly *gánige gutta*, a rent for their gánas or mills for grinding oil-seeds ; for this the Sarkar provided a great tree for the mill and a place to erect it on ; and none other was permitted to manufacture oil in the village except him who paid this rent.

The Government used to appoint some aged men of the several inferior classes to be the heads of their respective castes, and to administer justice. These Headmen, on any complaint against their people, should investigate it and fine them if guilty, adjudging the fine or punishment proportioned according to the law and the nature of the case. For instance, a husband convicting his wife of adultery, was allowed to sell her to another man, but of his own caste, and receive the price for his use.[1] These Headmen employed Dásaris as subordinate officers to minister in religious ceremonies

[1] An instance of this kind occurred at Harihar, says the writer, when we were in that neighbourhood in 1800 ; a Brahman among many other fugitives from the seat of war in the Savanur country, then overrun by Dundia and the contending parties, offered his wife for sale, because the unfortunate woman had been violated ; but the Brahmans of Harihar, though at first of opinion that she ought to be sold as a slave, on further consideration, and consulting with more enlightened persons, found that as her misfortune had been involuntary, it might be expiated by penance and a pecuniary mulct to the offended law.

among the inferior castes. Previous to the ceremonies commencing, the customary duty or gratuity was given to this minister of religion, and they were then at liberty to proceed with the festival, whether of marriage or any other occasion. But if the parties neglected the established presents, the Dásaris returned to their houses in displeasure and no other Dásaris would perform the office, as they would be liable to punishment for interfering. By these means the Headmen collected fines, perquisites and presents from their castes, from which they paid an annual tax to the Government. This branch of custom was called *samayácháram* and was taken credit for in the jamábandi accounts.

As the Mádiga or chuckler had a greater áyam or allowance than the other A'yagár, and that besides when he supplied ropes and leather for the use of the gardens they paid him a quantity of grain proportioned to the produce, he therefore paid *játi-mányam*, a higher tax than the other village officers, and the Sarkar people presented him with a coarse cloth at the time of settlement yearly. In some places it was customary, if the chuckler was not able to pay the játi-mányam, that the Sarkar assumed his allowances and share of the crop, and giving him one-half of his perquisites, the rest was included in the government rental. He must be always ready to serve and obey the orders of the Sarkar officers; and the villagers generally employed the chuckler to show the roads to travellers, and carry letters from their village to the next stage. Besides the áyams already mentioned, the chucklers in many places had inám or free gift lands, for which they paid some gratuity to the Sarkar.

The people who extracted salt from the soil of the Sarkar lands paid a revenue to the Government, called *uppina molla*, proportioned to the produce. The cow-keepers or Gollas paid *hullu-banni* for the liberty of feeding their flocks and cattle in the public lands. The Amildar of the district appointed one headman to collect the money arising from the duty of hullu-banni in different places, which was thus included in the jamábandi. The jungles were let out for a certain rent, *kávali gutta* or *konda gutta*. to people who sold the grass and firewood to the inhabitants, according to the accounts of their kists. Those who farmed the exclusive sale of different articles from the Sarkar, purchased these articles at a low price and sold them in the market at an advanced rate; no other shopkeepers being permitted to interfere in this trade. From these articles altogether a certain revenue arose to the Sarkar, payable at the terms agreed on in the jamábandi. The shroff used formerly to pay a very handsome tax to the Sarkar, which was suppressed in 1801 at Chitaldroog.

The Jayaris were people convicted of murder, who were under the ancient government employed as executors to put criminals to death by order of the magistrate. For this duty they were permitted to take one gold fanam from each pariah house; their allowance is still admitted in the Chitaldroog country; they paid yearly 100 pagodas to Government as *Jayari gutta*. *Siváyajama*, not being certain, was the only item not included in the jamábandi and estimate. It is composed of the fines imposed for certain malversations or misdemeanours, and carried to account under this head.

The foregoing formed the heads of the several branches, called Báb, of revenue arising to the sovereign, of which the Jamábandi included the estimated amount, which being settled, and the revenue collected according to the kist, the occupiers used to remit the produce into the general treasury, which accounts for the disbursements made by order in the Civil and Military establishments of the Districts. The balances due by the renters were carried to the next jamábandi, under the head of Silsila Báki, which they collected from the renters with the next year's rent. The Rájas and many of the other governors, even Haidar, used to remit the charge of repairs of tanks.

For the improvement of the revenue, the following methods were generally observed :—

The Government advanced money to the ryot who ploughed one vokkala with one plough, to enable him to provide cattle, instruments of tillage and other means to bring into cultivation next year three or four vokkalas of waste land. They also took pains to get broken tanks repaired, as well as the channels that conducted water to the fields ; and on the high grounds where channels could not be led from the tanks, they dug many kapile wells.

They gave *kauls*, or a sufficient surety of protection, to the head gauḍas of the country, who used their influence to introduce such inhabitants (from foreign countries) as might be dissatisfied with their state at home ; these were placed in convenient situations until they were settled and acquainted with the management of the country, when the Sarkar gave them waste lands to cultivate at a reduced rate, till the expiration of a certain term, after which they were to pay the same rent as other ryots of the country.

The Government also encouraged the cultivation or manufacture of various articles of commerce much in demand, by supplying seeds, plants, &c., and the first expenses ; sugar, indigo, opium and other articles were thus cultivated by the ryots according to instructions given on this subject.

The Government used further to make advances of money to foreign merchants and encouraged them to settle in new pettas and markets, to which they brought scarce and valuable goods from distant countries, and in return exported the product of this country to places where they could be disposed of to advantage : the customs were by this means increased, and an additional income derived by the renters of the new market places.

Some of the ancient Rájas used to trade for their own advantage in the following manner :—The cattle belonging to the Sarkar were employed in time of peace to transport the grain and other products received in the half-share of the crop from the ryots, to the market towns where they were sold at the highest price, whence a more considerable price was secured. even twice or thrice more than they would get in the country, by being free of those duties that the merchants were liable to.

The establishments employed in the management of the Gaḍis were

on a very moderate footing. The Náḍiga had no pay allotted to him in many cases, as he rented generally the country, and was supposed to derive some advantage from his district; the pay of the Parpattegar or Amildar was 10 pagodas per month; Sheristedar, 5 pagodas; other writers from 1½ to 3 pagodas; when the Rájas employed people to collect the sunkam on their own account, and accounts of this department were kept, they gave a salary to the Sunkadava of from 2 to 5 pagodas; the regulated pay of Atthavaṇe or revenue peons was from 6 to 10 Kanṭhiráya fanams.

Little information could be obtained of any regular *Courts of Justice* or Judges specially appointed for that purpose under the ancient forms of government.[1] Among the eight established great offices of State or Ashṭa Pradhána, we do not find any mention of a Judge; but there were seven Heads of Departments under Rama Raya, as follows, among whom one was apparently so designated:—

Pradháni Durga Daksha—governor of the hill forts.
Bhila Daksha—superintendent of tanks and lower forts, master of the pioneers and workmen.
Dharma Karta—lord of justice and superintendent of charities and alms.
Senádhipati—commander-in-chief of the army.
———— superintendent of the haisebs or vakils, the Intelligence Department.
Pura Daksha—superintendent of towns, &c.
Devasthan Alapati—superintendent of temples and religious buildings.

But the pandits may be considered as expounders of the law or counsellors of the Rájas, who in their own persons united the office of judge and legislator. The Palegars had courts of *pancháyati*, wherein complaints were heard and decisions given, by five respectable persons, whence the name—*pancha*, five, and *ayati*, gathering.

The Persian Ambassador previously quoted (p. 351) has the following remarks on the administration of justice and police regulations at Vijayanagar as he saw them in 1441, in the reign of Deva Raya:—

On the right hand of the palace of the Sultan there is the *díwán-khána*, or minister's office, which is extremely large, and presents the appearance of a *chihal-sutún*, or forty-pillared hall; and in front of it there runs a

[1] On this subject Sir H. S. Maine says:—Though the Brahminical written law assumes the existence of king and judge, yet at the present moment in some of the best governed semi-independent Native States, there are no institutions corresponding to our Courts of Justice. Disputes of a civil nature are adjusted by the elders of each village, community, or occasionally, when they relate to land, by the functionaries charged with the collection of the prince's revenue. Such criminal jurisdiction as is found consists in the interposition of the military power to punish breaches of the peace of more than ordinary gravity. What must be called criminal law is administered through the arm of the soldier.—*Vill. Com.*, 71.

raised gallery, higher than the stature of a man, thirty yards long and six broad, where the records are kept and the scribes are seated.[1] In the middle of the pillared hall, a eunuch, called a *Danáik*, sits alone upon a raised platform, and presides over the administration ; and below it the mace-bearers stand, drawn up in a row on each side. Whoever has any business to transact, advances between the lines of mace-bearers, offers some trifling present, places his face upon the ground, and standing upon his legs again, represents his grievance. Upon this, the Danáik issues orders founded upon the rules of justice prevalent in that country, and no other person has any power of remonstrance. When the Danáik leaves the chamber, several coloured umbrellas are borne before him, and trumpets are sounded, and on both sides of his way panegyrists pronounce benedictions upon him. Before he reaches the King he has to pass through seven gates, at which porters are seated, and as the Danáik arrives at each door, an umbrella is left behind, so that on reaching the seventh gate the Danáik enters alone. He reports upon the affairs of the State to the King, and, after remaining some time, returns. His residence lies beyond the palace of the King.

On the left hand of the palace there is the mint. Opposite the mint is the office of the Prefect of the City, to which it is said 12,000 policemen are attached ; and their pay, which equals each day 12,000 fanams, is derived from the proceeds of the brothels. The splendour of those houses, the beauty of the heart-ravishers, their blandishments and ogles, are beyond all description. It is best to be brief on the matter . . . . The revenues of the brothels, as stated before, go to pay the wages of the policemen. The business of these men is to acquaint themselves with all the events and accidents that happen within the seven walls and to recover everything that is lost, or that may be abstracted by theft ; otherwise they are fined. Thus, certain slaves which my companion had bought, took to flight, and when the circumstance was reported to the Prefect, he ordered the watchmen of that quarter where the poorest people dwelt to produce them or pay the penalty ; which last they did, on ascertaining the amount. Such are the details relating to the city of Bijanagar and the condition of its sovereign.[2]

Carnatic Bijapur.—When from the conquests of Ran-dulha Khan, the Bijapur general, parganas had been formed, he arranged the subordinate divisions of *samats*, *tarafs*, *mauje*, *mujare* of each Pargana, and appointed Jamadars or collectors. In the time of the Rāyals, the accountants had been called *Samprati*, but the Mahrattas introduced the different offices of Deshpánde, Deshkulkarni, Sar-Nád-Gaud,

[1] These people, he adds, have two kinds of writing, one upon a leaf of the Hindu nut (palmyra) which is two yards long and two digits broad, on which they scratch with an iron style. These characters present no colour, and endure but for a little while. In the second kind they blacken a white surface, on which they write with a soft stone cut into the shape of a pen, so that the characters are white on a black surface and are durable. This kind of writing is highly esteemed. (*See* above, p. 503.)

[2] Sir H. Elliot, *Hist. Ind.*, iv, 107, 111.

Deshmuki and Kanungo, by whom the accounts of the country were kept; they also appointed Sheristedars to all the parganas. When jágirs were granted to the Killedars and Mansubdars by the Sarkar, the revenue accounts of the districts for the last years were previously examined, and the new revenue rated annually on the jágir to be granted. In fixing the revenue thus established, the ináms or free gift lands, land customs, &c., were discontinued or deducted, and the net revenue, more or less than the former, ascertained by means of the Jamadars.

The Deshkulkarni was to write the *kaul paṭṭa*, the contract or lease for the revenue; the Deshpánde was to sign it in Mahratti characters at the bottom of the paper; the Deshmuki, Kanunga and Sar-Nád-Gaud were also to add their signatures to the written deed, and the Amildar finally to seal it. The particular accounts of the parganas were kept as follows: the Shánbhóg was to keep the written accounts of the mauje or village, the Deshkulkarni to keep the accounts of the samats, the Deshpánde the accounts of the parganas, and the Kanunga to sign the *paṭṭe* or revenue agreements. He was also to keep a written register of the revenue of the district, to be delivered to the Sarkar. It was the duty of the Deshmuki and Sar-Nád-Gaud to control and inspect all accounts, and report them to their superiors; they were also to inquire and report generally on all affairs, and the settlement of the district.

Sira.—When the Moguls formed the Suba of Sira, 12 parganas were annexed to it, and the other districts were permitted to be still held by the Palegars on condition of paying an annual tribute. Officers for collecting and managing the revenues were appointed in the amáni districts only; at the same time the offices of Deshmuki, Deshkulkarni and Sar-Nád-Gaud were formed into one office. Deshpándes, Majmúndárs, Kánungoyas, and Kulkarnis were maintained according to the forms long established in the dominions of Bijapur. The Deshmuk was to settle the accounts with the patels; the Deshpánde to check the accounts of the karnams; the Kanunga to register the official regulations, and to explain the ordinances and regulations to the inhabitants and public officers to prevent errors or mistakes. In the Majmúndár's office, the accounts of the settlement were made out and issued.

The accounts of all kinds were anciently kept in Kannaḍa, but after the Mahratta chiefs attained power in the Carnatic, many Deshasts or natives of their countries followed them, who introduced their language and written character into the public accounts. Even in the samsthans of the Palegars, where the revenue and military accounts had been kept

in Kannada alone, some of them beginning then to entertain large bodies of horse, employed Mahratta accountants to check the pay accounts in that language for the satisfaction of the horsemen of that nation. After the Moguls came into the country and established the Suba of Sira, the Persian language came into use.

Under the Rájas of Mysore, &c.

In the south, in the growing kingdom of Mysore, about the year 1701, Chikka Deva Rája, it is stated, distributed the business of government into 18 cutcherries or departments, probably from having learned from his ambassadors to Aurangzib that such was the practice at the imperial court. These departments were :—

1. *Nirúpa chávaḍi* or the secretary's department, to which he appointed one daroga or superintendent, and three daftars, registers or books of record. Everything was recorded in each of the three in exactly the same manner; all letters or orders despatched, to be previously read to the Rája. 2. *Ekkada chávaḍi*, whose business it was to keep the general accounts of revenue, treasury, and disbursements, civil and military; this seems to approach our office of accountant-general. 3 and 4. *Ubhaika vichára*, or two-fold inquiry. He divided his whole possessions into two portions; that north of the Kaveri he called the Paṭna Hóbli; that south of the Kaveri was named the Mysore Hóbli: to each of these cutcherries he appointed one divan and three daftars. 5. *Shime Kandáchár*; it was the duty of this cutcherry to keep the accounts of provisions and military stores, and all expenses of the provincial troops, including those connected with the maintenance of the garrisons; one bakshi and three daftars. 6. *Bákal Kandáchár* (bákal, a gate or portal); it was the duty of this department to keep the accounts of the troops attending at the *porte*, that is to say, the army, or disposable force. 7. *Sunkada chávaḍi*, or duties and customs; it was their duty to keep the general accounts of customs levied within his dominions. 8. *Pom chávaḍi*: in every taluq where the sunka was taken, there was another or second station, where a farther sum equal to half the former amount was levied; for this duty he established a separate cutcherry. 9. *Tundeya chávaḍi* (*tunde*, half, *i.e.*, half of the pom); this was a farther fourth of the first duty, levied in Seringapatam only. 10 and 11. In the Ubhaika vichara were not included the Srirangapatna and Mysore Ashtagrama (eight townships): for each of these he had a separate cutcherry; besides the business of revenue, they were charged with the provisions and necessaries of the garrison and palace. 12. *Beṇṇe chávaḍi*, the butter department; the establishment of cows, both as a breeding stud, and to furnish milk and butter for the palace: the name was changed by Tipu to *Amrit Mahal*, and then to *Keren Barik*. (Amrit, the Indian nectar. Keren Barik, an Arabic term, may be translated almost verbally *Cornu Copia*.) 13. *Paṭnada chávaḍi*; this cutcherry was charged with the police of the metropolis, the repairs of the fortifications and public buildings. 14. *Behin chávaḍi*, the

department of expedition, or the post-office: the business of espionage belonged also to this department. 15. *Samukha chávadi*: the officers of the palace, domestics, and personal servants of every description belonged to the charge of this cutcherry. 16. *Devasthán chávadi*, kept the accounts of the lands allotted to the support of religious establishments, the daily rations of food to the Brahmans, lighting the pagodas, &c. 17. *Kabbinada chávadi*, iron cutcherry: this article was made a monopoly, and its management was committed to a separate cutcherry. 18. *Hoge soppin chávadi*, the tobacco department, another monopoly by the government, which in Seringapatam was the exclusive tobacco merchant.

It is certain that the revenues were realized with great regularity and precision, and this Rája is stated to have established a separate treasury to provide for extraordinary and unexpected disbursements, of which he himself assumed the direct custody. It was his fixed practice, after the performance of his morning ablutions, and marking his forehead with the insignia of Vishnu, to deposit two bags (thousands) of pagodas in this treasury from the cash despatched from the districts, before he proceeded to break his fast. If there were any delay in bringing the money, he also delayed his breakfast, and it was well known that this previous operation was indispensable. By a course of rigid economy and order, and by a widely extended and well-organized system of securing for himself the great mass of plunder obtained by his conquests, he had accumulated a treasure from which he obtained the designation of Navakóṭi Náráyana, or the lord of nine crores (of pagodas), and a territory producing a revenue calculated to have been Kanṭhiráya pagodas 13,23,571.

The method by which he raised the revenue is thus described:—The sixth was the lawful share of the crop, for which the Rája received his equivalent in money; and he was unwilling to risk the odium of increasing this proportion in a direct manner. He therefore had recourse to the law of the shástras, which authorized him, by no very forced construction, to attack the husbandman by a variety of vexatious taxes, which should compel him to seek relief by desiring to compound for their abolition by a voluntary increase of the landed assessment: and this is the arrangement which generally ensued; although, from the great discontent excited by the taxes, the compromise was generally made on the condition of excepting some one or more of the most offensive, and proportionally increasing those which remained. But the Rája, with that profound knowledge of human nature which distinguished all his measures, exempted from these new imposts all the lands which were allotted to the provincial soldiery in lieu of pay, according to the ordinary practice of the smaller Hindu

States and thus neutralized, in some degree, the opposition to the measure, and ensured the means of eventual compulsion. Subjoined is the detail of these taxes.[1] The whole system is stated to have been at once unfolded, with intimation that it would be gradually introduced according to circumstances; but the commotions which it produced, by leading to measures of extreme severity, precipitated its total and abrupt introduction.

One of the earliest measures of this Rája's reign had been to compel the dependent Wodeyars and Pálegars, who, like his own ancestors, had commenced the career of ambition by affecting in their respective

[1] *Mane terige*, or house-tax. 2. *Hul haṇa*, a tax upon the straw produced on the ground which already paid *kandáya*, or the land-tax, on the pretence that a share of the straw, as well as of the grain, belonged to government. 3. *Deva Ray utta*—utta is literally *loss*, the difference of exchange on a defective coin. Deva Raj, on the pretence of receiving many such defective coins, exacted this tax as a reimbursement; this was now permanently added to the ryots' payments. It was different according to the coins in use in the several districts, and averaged about two per cent. 4. *Bergi*—a patel (for example) farmed his village, or engaged for the payment of a fixed sum to the government; his actual receipts from the ryots fell short of the amount, and he induced them to make it up by a proportional contribution. The name of such a contribution is *bergi*, and the largest that had ever been so collected was now added, under the same name, to the kandáya of each ryot. 5. *Yeru sunka*—*sunka* is properly a duty of transit on goods or grain; *yeru*, a plough. The ryot, instead of carrying his grain to where a transit duty is payable, sells it in his own village. The *yeru sunka* was a tax of one to two gold fanams on each plough, as an equivalent for the tax which would have been paid if the grain had been exported. 6. *Játi mánya*, a tax upon the heads of those castes (*Jogi*, *Jangam*, &c.) who do not come within the general scope of Hindu establishments, and form separate communities which occasionally oppose the Brahminical rule. On every occasion of marriage, birth, or law-suit, or quarrel, a certain fine was levied on each house concerned as parties or judges, and a chief of each caste was made responsible for the collection. 7. *Magga kandáya* or loom-tax. 8. *Kuṭike terige*, a tax on fornication. 9. *Madive terige*, a tax upon marriage. 10. *Angaḍi pattadi*, or shop-tax. 11. *Angadi passera*, a tax upon the movable booths which are set up daily in the middle of the bazaar streets. 12. *Kávadi terige* (kávadi is the name of a bullock saddle) a tax upon bullocks kept for hire. 13. *Márike* (selling), a tax upon the purchase and sale of cattle. 14. *Uppin mála*, a tax upon the manufacture of inland salt, produced by lixiviating saline earths. 15. *Ubbe kánike*—ubbe is the kettle or vessel made use of by washermen to boil and bleach their cloths; this was a tax on each kettle. 16. *Kuri terige*, a tax of a certain sum per cent. on flocks of sheep. 17. *Páshwara* (Pasha is a fisherman, a net). 18. *Gida gával*, a tax upon wood for building, or fuel brought in from the forests. 19. *Gulavina pommu*. (Guḷa is the name of a plough-share.) This is a separate tax on that instrument, exclusively of the plough-tax, No. 5, which is professed to be a tax on the alienation of grain. 20. *Terad bagalu* (opening a door). In a country and a state of society where window-glass was unknown, this was a most ingenious substitute for the window-tax. The husbandman paid it, as expressed by the name, for the permission to open his door. It was, however, levied only on those made of planks, and not on the common bamboo door of the poorer villagers.

districts to be addressed by the title of Rája, publicly to renounce that assumption of independence, to disclaim the local prerogatives of punishment and confiscation without previous authority from the Rája, and to revert to their original character of obedient officers of the government. This object was aided by first inviting, and then compelling, them to fix their residence at Seringapatam; by assigning to them offices of honour about the Rája's person, and gradually converting them from rebellious chieftains to obsequious courtiers. The insurgents in the districts were left, in consequence, destitute of the direction of their accustomed leaders, and the Jangam priests, deprived of their local importance, and much of their pecuniary receipts, by the removal of these mock courts from the provinces, were foremost in expressing their detestation of this new and unheard-of measure of finance, and in exhorting their disciples to resistance. The terrible mode in which this was put down has been described p. 367. The new system of revenue was finally established, and there is a tradition that the Rája exacted from every village a written renunciation, ostensibly voluntary, of private property in the land, and an acknowledgment that it was the right of the State.

Bednur.—In the Bednur territory, the west of the country, the most distinguished ruler was Sivappa Nayak, who reigned 1648 to 1670. His *shist* or land assessment, and *prahar patti* or rules for collecting the hálat on areca-nut, &c., are frequently referred to in proof of his financial skill, and he is said to have framed a scale of expenditure, including every contingency for each day in the year, for the Sringeri maṭha.

During twelve successive years, he caused one field of each description of land, in every village, to be cultivated on his own account, and an accurate record kept of the seed sown, the expense of culture, and the quantity and value of the produce. He then struck averages of the produce and prices, and taking the value of one khandaga (of 50 seers) at one fanam, and the Sarkar share as one-third of the gross produce, fixed the rates shown in the table on the following page, land being distributed into five classes, with two rates for each class.

Gardens were measured with a rod, the length of the stone steps at the Ikkeri Aghoresvara devasthan (18 feet 6 inches English exactly). This rod was the space called *dáya* allowed for one tree. The shist was fixed on 1,000 such daya at various rates. These are not given, but they appear to have varied from 7 to 25 Bahaduri pagodas.

The shist continued for thirty-nine years from 1660. The following additions were afterwards made:—In 1700, one anna in the pagoda, called *dasoha*, by Chinnammáji, for the support of an establishment

for providing food gratis to all who applied. In 1736, one fanam four as. per pagoda, called *pagudi*, by Chikka Somasekhara, when the Moguls threatened an invasion. In 1753, one fanam four as. per pagoda, called *patti*, by Basappa Nayak, to pay the Mahratta chout.

SHIST ON LAND REQUIRING ONE KHANDAGA OF SEED. WET LAND.

Class of land.	Description.	Produce.								Rate.					
		Highest.				Lowest.				Highest.			Lowest.		
		Quantity.	Value.			Quantity	Value.								
		Khandis.	P.	F.	A	Khandis.	P.	F.	A.	P.	F.	A.	P.	F.	A.
1st, Uttamam.	Yeremisra,—black, and black mixed with sand. .	30	3	0	0	26½	2	6	4	1	...	0	...	8	12
2nd, Madhyamam.	Bettabis, — high and open red or mixed . .	22½	2	2	8	18¾	1	8	12	...	7	8	...	6	4
3rd, Kanishtam.	Varavindu, — dark or light sand with springs . .	15	1	5	0	11¼	...	...	...	...	5	0	...	3	12
4th, Adhamam.	Yatte,—hard, high without moisture	7½	...	7	8	3¾	...	...	...	...	2	8	...	1	4
5th, Adhamádhamam.	Urimalal, — hot sand, dry, and above level of water . .	3	...	3	0	17½	...	...	...	...	1	0	...	...	10

Dry land, or *hakkal*, in the Gaddenad, was included in the gadde shist. In the open country the following rates were fixed per khandaga :—

Class.	Description.	P.	F.	A.
1st	Yere,—black clay	2	2	8
2nd	Kari Masab,—dark loam with sand... ...	2	0	0
3rd	Kemman,—red	1	7	8
4th	Malal,—sandy	1	5	0
5th	Imman,—mixed	1	0	0
6th	Gonikal,—gravelly	0	7	8

Under the Basvapatna chiefs, Bedar offered higher rents for some villages than were paid by the old gauḍas, who were Kurubar, which were accepted, which ended in the ryots at length agreeing to pay an addition to the kulavana of from two to six fanams in the pagoda. This was the origin of *birada*, which is found in the east of the Shimoga District.

Haidar Ali.—Such was the system before Haidar Ali Khan; when he had subjugated the ancient Pálegars, he again reinstated several of them on condition of paying an annual tribute; and he followed generally the regulations formerly established, and the peculiar customs and laws of the different provinces. But he was at all times accessible to complaints, and never failed to pursue to its source the history of an irregular demand, and to recover it with additional fines from the exactor. It is true that the amount was never returned to the complainant, but it frequently produced the dismission of the offender; the certainty of investigation tended to restrain oppression, and, as Haidar was accustomed to say, rapacity in this case was nearly as good for his subjects, and much better for himself, than a more scrupulous distribution of justice. For though he left the fiscal institutions of Chikka Deva Rája as he found them, he added to the established revenue whatever had been secretly levied by a skilful or popular Amil and afterwards detected: this produced a progressive and regular increase, and the result of complaints gave occasional, but also tolerably regular, augmentations.

Two Brahmans, with the title of Harkáras, resided in each taluq. Their duty was to hear all complaints, and to report these to the office of the revenue department. They were also bound to report all waste lands. This was found to be a considerable check to oppression and to defalcations on the revenue.

Tipu Sultan.—But Tipu Sultan, not approving of the old regulations, introduced a new system through all his dominions. He divided the whole into *tukaḍis* of five thousand pagodas each, and established the following officers in each tukaḍi:—One Amildar, one sheristedar, three gumastas, one tarafdar to each taraf, six aṭṭhavaṇe peons, one golla (or headman) to seal and keep money, one shroff and one munshi. To twenty or thirty tukaḍis was attached an Asuf cutcherry: the official establishment of each of them was—first and second Asufs, two sherista, two gumastas with five men each, forty peons, one shroff, one munshi, one mashalchi to attend the office, one Persian sheristedar, and some gumastas to keep the accounts in Persian. In this manner an entire new system of management was introduced. Mir Sadak, the president of the Asuf cutcherry, circulated such new orders as were necessary, under the signature and seal of the Sultan, to the Head Asufs of the Revenue Department, which they communicated to Amildars under them, and these sent them to the Tarafdars with directions to have them notified throughout their districts. He dispensed with the Harkáras appointed by Haidar, and this measure of economy contributed much to the oppression of the people.

The accounts of revenues were made out in the Kannaḍa character by the tarafdars; fair copies of which they communicated to the Amildars, in whose office they were translated into Mahratti, and a copy of each preserved by the sheristedars in the Kannaḍa and Mahratti languages. A third set was kept in Persian.

The following salaries were attached to offices:—In the Tukaḍi Office the Amildar got 10 pagodas; sheristedar, 5; gumasta, 2; munshi, 2; golla, 8 fanams; shroff, 8; aṭṭavaṇe peons, 6; naiks, 8. The sunkadars had no pay, being renters in several districts. In the Asuf cutcherry, Asufs from 50 to 60 pagodas each; sheristedars, from 25 to 30; gumastas, Persian 8, Kannaḍa 6, Hindavi 7; munshi, 8; golla, 2; shroff, 2; kazi, 5; his duty was to administer justice to the Musalmans, and all of that religion who neglected to come to perform the *namáz* in the mosque on Friday were liable to be fined or punished by the kazi.

From Wilks the following further details are extracted, regarding what Tipu Sultan in his memoirs styles his "incomparable inventions and regulations," some reference to which has been made in p. 409:—

"The code of *military regulations* contained elementary instructions for the infantry, which were as well given as could be expected from a person copying European systems, and unacquainted with the elements of mathematical science; the invention of new words of command would have been a rational improvement, if the instructions had thereby been rendered more intelligible; but the substitution of obsolete Persian for French or English gave no facility in the instruction of officers and soldiers, who, speaking of them in mass, may be described as utterly ignorant of the Persian language. The general tendency of the changes, effected in the whole of his military establishment, was to increase and improve his infantry and artillery at the expense of the cavalry.

The *fleet* was originally placed by Tipu under the Board of Trade. The experience of two wars had shown that it would always be at the mercy of a European enemy; and it seemed to have been chiefly considered as a protection to trade against the system of general piracy then practised along the western shores of India, up to the Persian Gulf. The loss of a moiety of every resource in 1792, gave a new scope and stimulus to invention; and the absurdity was not perceived of seeking to create a warlike fleet without a commercial navy, or of hoping, literally without means, suddenly to rival England in that department of war which was represented to be the main source of her power by the vakils who accompanied the hostages, and had been specially instructed to study the English institutions. This novel

source of hope was not finally organized on paper till 1796, and can scarcely be deemed to have had a practical existence. He began in 1793 with ordering the construction of a hundred ships; but in 1796 he sunk to twenty ships of the line and twenty frigates; eleven Commissioners, or Lords of the Admiralty (*Mir-e-Yem*), who were not expected to embark; thirty *Mir Bahr*, or Admirals, of whom twenty were to be afloat, and ten *at court* for instruction—a school for seamanship which it is presumed a British Admiral would not entirely approve. A 72-gun ship had thirty 24-pounders, thirty 18-pounders, and 12-nines; a 46-gun frigate had twenty 12-pounders, as many nines, and six 4-pounders; the line-of-battle ships were 72's and 62's; and the men for the forty ships are stated at 10,520. To each ship were appointed four principal officers: the first commanded the ship; the second had charge of the guns, gunners and ammunition; the third, of the marines and small arms; the fourth, the working and navigation of the ship, the provisions and stores; and the regulations descend to the most minute particulars, from the dockyard to the running rigging; from the scantlings of the timbers to the dinner of the crew.

The *commercial regulations* were founded on the basis of making the sovereign, if not the sole, the chief, merchant of his dominions; but they underwent the most extraordinary revolutions. On his accession he seems to have considered all commerce with Europeans, and particularly with the English, as pregnant with danger in every direction. Exports were prohibited or discouraged; first, because they augmented to his own subjects the price of the article; second, because they would afford to his neighbours the means of secret intelligence; and third, because they would lift the veil of mystery which obscured the dimensions of his power. Imports were prohibited, because they would lessen the quantity of money, and thereby impoverish the country; propositions which may indicate the extent of his attainments in political economy: and such was the mean adulation by which he was surrounded, that domestic manufactures of every kind were stated to be in consequence rapidly surpassing the foreign, and a turban of Burhampoor would be exhibited and admired by the unanimous attestation of all around him as the manufacture of Shahar Ganjam. It was under the influence of this utter darkness in commercial and political economy, that in 1784 he ordered the eradication of all the pepper vines of the maritime districts, and merely reserved those of inland growth to trade with the true believers from Arabia. The increase of this article of commerce became, some years afterwards, an object of particular solicitude, but it is uncertain whether the

prohibition of growing red pepper or chilli, was to be considered as a commercial regulation, to increase the growth of black pepper, or as a medical regimen, or as a compound of both motives. It is a general opinion in the south of India, that the free use of red pepper has a tendency to generate cutaneous eruptions, and the Sultan certainly prevented its entering his harem for six months; whether in that period he did not find the ladies improved in the smoothness of their skin, or was influenced by other causes, he withdrew the prohibition of culture about a year after it had been promulgated.

From the personal reports of the vakils who accompanied the hostages to Madras, his attention was called to a proposition, however strange, yet stated to be generally admitted among the most enlightened persons at Madras, that the power not only of the English Company but of the English King, was founded in a material degree on commercial prosperity; and the Sultan devised an extensive plan for a similar increase of power; still, however, pursuing the principles which he conceived to be sanctioned by the example of the India Company, of combining the characters of merchant and sovereign. In a long and laborious code of eight sections, he established a royal Board of nine Commissioners of Trade, with seventeen foreign and thirty home factories in the several Districts; furnished with extensive instructions for a profitable system of exports and imports, by land and by sea, and a strict theoretical control over the receipts and disbursements; the monopolies, however, continued to be numerous, and those of tobacco, sandalwood, pepper and the precious metals were the most lucrative.

One, however, of the sections of commercial regulation is so perfectly unique that it may afford entertainment. It professes to be framed for the attractive purpose of "regulating commercial deposits, or admitting the people at large to a participation in the benefits to accrue from the trade of the country." Every individual depositing a sum not exceeding five hundred rupees was declared entitled at the end of the year to receive, with his principal, an increase of 50 per cent. For a deposit of from five hundred to five thousand, 25 per cent. Above five thousand, 12 per cent., with liberty at all times and in all classes, to receive, on demand, any part of the deposit together with the proportion of interest[1] up to the day. These variations of profit, in the inverse ratio of the deposit, were probably intended to show his consideration for the small capitalist, but a project for enticing his subjects into a swindling loan was too glaring to be mis-

[1] The word *interest* is not employed, usury being at variance with the precepts of the Koran; *profit* is the term used.

understood. At a very early period of his government, he had, in an ebullition of anger, extinguished the business of banker, and monopolized its dependent and most profitable trade of money-changer. He now issued an ordinance, converting the trade of money-changer and broker into a monopoly for the benefit of Government, furnishing coin for the purpose, from the treasury, to servants paid by regular salaries. It was, however, reported that the dealers kept aloof from transactions with the government shops, that the expenses far exceeded the profits, and that it was necessary either to abandon the plan, or to enlarge it so as to embrace not only regular banking establishments but commercial speculations necessary to their prosperity. A part of this plan was therefore gradually introduced, and the funds in the hands of the money-changers were employed in advantageous loans.

The *regulations of revenue*, professing like those for pecuniary deposits to be founded on a tender regard for the benefit of the people, contained little that was new, except that the nomenclature and the institutions of Chikka Deva Rája and Haidar were promulgated as the admirable inventions of Tipu Sultan. One improvement occurs, not undeserving the modified consideration of Western statesmen who value the health or the morals of the people. He began at an early period to restrict the numbers and regulate the conduct of the shops for the sale of spirituous liquors, and he finally and effectually abolished the whole, together with the sale of all intoxicating substances, and the destruction, as far as he could effect it, of the white poppy and the hemp plant, even in private gardens. For the large sacrifice of revenue involved in this prohibition, the extinction of Hindu worship and the confiscated funds of the temples were intended to compensate, and would, if well administered, in a degree have balanced the tax on intoxicating substances: the measure commenced at an early period of his reign, and the extinction was gradual, but in 1799 the two temples within the fort of Seringapatam alone remained open throughout the extent of his dominions.

Of his system of *police*, the following extract from his official instructions may suffice :—"You must place spies throughout the whole fort and town, in the bazaars, and over the houses of the principal officers, and thus gain intelligence of every person who goes to the dwelling of another, and of what people say, &c., &c." All this Haidar effectually did, and all this Tipu Sultan only attempted. No human being was ever worse served or more easily deceived."

The Regency of Purnaiya, 1799-1810.

Of the system of administration as established under the Divan Purnaiya, an account is given in a report from the same pen, under date 1804, from which the subjoined particulars are derived :—

Tipu Sultan attempted the subjugation of the whole of the Pálegars, and the annexation of their lands to those of the Sarkar; but under the complicated system of fraud and malversation of every kind which prevailed, a large proportion of the pályams which continued to be represented at the Presence as under Sarkar management, were, by a mutual collusion of the Pálegar and Amil, held by the former; and the degree of authority which should be exercised by the latter, came at length to depend on the sufferance of the Pálegar, who had often but slender claims to that title. On the establishment of the present government, there were, accordingly, few districts that did not furnish at least one claimant, possessing or pretending to the hereditary jurisdiction. The mischief was not confined to the revival of former pretensions; in some cases the patels, and in others the officers of police, emulating the Pálegar character, and copying their history, sought to obtain the independent rule of their respective villages and the privilege of encroaching on their neighbours; and the ryots who could afford a bribe were generally successful in procuring a false entry in the books of the District, of the quantity of land for which they paid a rent. In some districts attempts were made by the newly-appointed Asufs or Amils to reform these latter abuses; but the frequent, and latterly the systematic, assassination of such reformers terrified their successors; and these feeble and ineffectual efforts served only to confirm the most base and abject reciprocation of licentiousness and corruption.

With a view to compose and encourage the well-affected, and to obviate unnecessary alarm in those of an opposite character, the new Administration commenced its proceedings by proclaiming an unqualified remission of all balances of revenue, and the restoration of the ancient Hindu rate of assessment, on the lands, and in the sáyar.

For the maintenance of public authority, a small but select body of cavalry, infantry and peons was collected from the ruins of the Sultan's army; and for the preservation of interior tranquillity, a plan was adopted which deserves to be more particularly described. The ancient military force of the country consisted of peons or irregular foot, variously armed, but principally with matchlocks and pikes; these men, trained from their infancy according to their measure of discipline to military exercises, were most of them also cultivators of the soil, but

the vacant part of the year had usually been allotted to military enterprise, and when the circumstances of their respective chiefs offered nothing more important, these restless habits led them to private depredation. It was necessary that men of these propensities should either be constantly restrained by the presence of a large military force, or be made by proper employment to feel an interest in the stability of the government; and there was no hesitation with regard to this alternative if the latter should be found to be practicable. Haidar Ali had employed large bodies of these men in his garrisons and armies. Tipu Sultan had diminished their numbers for an increase of his regular infantry; but neither of those chieftains steadily pursued any systematic plan on this important subject.

The system adopted by the Divan was, to engage in the service of the State at least one individual from each family of the military; to respect the ancient usages of their several districts with regard to the terms on which peons were bound to military service; in all practical cases to assign waste lands in lieu of one-half of their pay, according to the prevailing usage of ancient times. Their local duties were defined to consist, in taking their easy tour of guard in the little forts or walled villages to which they were attached; and in being ready at all times to obey the calls of the officers of police.

Their village pay, half in land and half in money, varied from 2 to 3 Rs. per month, with a batta of $3\frac{1}{2}$ if called out from their respective districts; when frequent reliefs, according to their domestic convenience, were always allowed. One thousand of them were prevailed on to enrol themselves for occasional service as dooly bearers, and 450 of that number served with the Company's army; and 817 of the number perform the duty of runners to the post-office of the Government of Mysore.

The number of peons thus enrolled, exclusively of those in constant pay, amounted during the two first years to 20,027 persons; and their annual pay to 225,862 Kanthiraya pagodas. Better information and improved arrangements enabled the Divan in the third year to reduce the number to 17,726; and the expense to 184,718 Kanthiraya pagodas. In the fourth and fifth years they were reduced to 15,247 persons, and the expense to 148,478 Kanthiraya pagodas; and this amount was considered by the Divan to be nearly as low as it could with prudence be reduced.

The lineal descendants and families of several of the most powerful Pálegars were destroyed in the general massacre of prisoners which was ordered by Tipu Sultan subsequently to the defeat of his army by Lord Cornwallis on the 15th May 1792. A few persons who preferred

the chance of future commotions to a suitable and respectable provision, retired from the country; a still smaller number, of refractory conduct, were imprisoned: but the greater proportion accepted gratuitous pensions, civil offices, or military command, on the condition of residing at Mysore, or accompanying the Divan when absent from that place. The expedient of assassinating an Amil was resorted to at an early period; but the police had even then assumed so efficient a form that all the murderers were traced and executed, and this savage experiment was not renewed.

The revolutions which had occurred at an earlier or more recent period in every district of Mysore, do not seem to have altered the tenures on which the lands were held by the actual cultivators of the soil. With the exception of Bednur and Balam, the general tenure of land may be described to be "the hereditary right of cultivation," or the right of a tenant and his heirs to occupy a certain ground so long as they continue to pay the customary rent of the district; but as in the actual condition of the people the rent can only be paid while the land is cultivated, it is apparently held that the right no longer exists than while it is thus exercised: and when the tenant ceases to cultivate, the right reverts to the Government, which is free to confer it on another.

In the provinces of Bednur and Balam, the property of the soil is vested in the landholder; and the hereditary right of succession to that property is held in as great respect as in any part of Europe. The rents being paid in money, and the officers of Government having no further interference with the ryots than to receive those rents, the tenure of land in those provinces is highly respectable. This venerable institution of hereditary property and fixed rents is attributed to Sivappa Nayak, and the rent established by him is said to have continued without augmentation until the conquest by Haidar Ali; there is reason, however, to believe that under the form of contributions to defray the expense of marriages and aids on extraordinary occasions, the rent actually paid was considerably enhanced. Military service was at all times a condition of the tenure.

On the conquest of Bednur by Haidar Ali in the year 1763, he at first attempted to conciliate the principal landholders; but having discovered a conspiracy to assassinate him, supported by the landholders and headed by the chief officers of the late government and some of his own confidential servants, he proceeded, after the execution of not less than 300 persons, to disarm landholders, and to commute their military service for a money payment, holding the country in subjection by means of an establishment of 25,000 foreign peons. This

assessment of the lands continued without alteration until the peace of 1792, which deprived Tipu Sultan of one-half of his territories, and suggested to him the singular expedient of compensating that loss by a proportional assessment on his remaining possessions. This measure, in Bednur as well as elsewhere, produced an effect exactly the converse of what was intended; and, added to other abundant causes, terminated in the absolute ruin of his finances.

On the establishment of the new government of Mysore, the landholders of Bednur attempted to stipulate for the restoration of the ancient rates of land-tax of Sivappa Nayak, and the remission of the pecuniary commutation of military service established by Haidar Ali. It was ascertained in Bednur, and it is believed also in Canara, that the commutation fixed by Haidar was fair and moderate: the rates of 1764 were accordingly adopted as the fixed land-tax, and continue apparently to give satisfaction.

The province of Balam was never effectually conquered until military roads were opened through the forest towns by the Honourable Major-General Wellesley in the year 1801–2. The authority of Haidar Ali, or of Tipu Sultan, over this province, was extremely precarious; and the presence of an army was always necessary to enforce the payment of the revenue. The rates of the land-tax had accordingly fluctuated, but were fixed by the new government at a standard which appeared to be acceptable to the landholders.

The Divan appeared to have an adequate conception of the advantages, both to the ryots and the government, of a system of hereditary landed property and fixed rents, over the more precarious tenures which prevailed in other parts of Mysore. And throughout the country he generally confirmed the property of the soil to the possessors of plantations of areca, cocoanut, and other plants which were not annual. The exceptions to this latter measure principally applied to gardens and plantations which had gone to decay under the late government from over-assessment; and to those which had recently been formed and did not yet admit of the adjustment of a fixed rent. He showed a general disposition to accede to the proposals of individuals for fixing the rents and securing the property on every description of land; but he did not press it as a measure of government, which the ryots habitually receive with suspicion, and held the opinion that people must be made gradually to understand and wish for such a measure before it could be conferred and received as a benefit.

The whole of the revenue is under amáni management. The cultivators of dry lands pay a fixed money rent, calculated to be equal to about one-third of the crop; and those of the wet or rice lands, a pay-

ment, nominally in kind, of about one-half of the crop; but generally discharged in money at the average rates of the district, which are adjusted as soon as the state of the crop admits of an estimate being made of its value. When the Amil and ryots cannot agree on the money payment, it is received in kind. The precarious nature of the rice cultivation in the central and eastern parts of Mysore makes it difficult to remedy this very inconvenient practice; and it has hitherto been found impracticable to adjust any money rents for wet cultivation in those parts of the country. In the western range some farmers have made the experiment of a money rent for rice-ground, but the wáram or payment in kind is generally found so much more profitable, by the facility it affords of defrauding the government, that the adjustment of money rents for that description of land is not making much progress.

The civil government is divided into three departments: 1st, Treasury and Finance; 2nd, Revenue; 3rd, Miscellaneous, not included in the two former. The conduct of the military establishment is entrusted to two distinct departments, of Cavalry and Infantry. The Kandachár, or establishment of peons already described, is under the direction of a sixth separate department, partaking both of civil and military functions, in its relation to the police, the post-office, and the army. The Divan may be considered personally to preside over every department.

The operations of the financial department are extremely simple. Each district has its chief golla, who keeps the key of the treasury; the sheristedar has the account, the Amil affixes his seal; and the treasury cannot be opened except in the presence of these three persons. The saráf examines the coins received on account of the revenue, affixes his seal to the bags of treasure dispatched to the general treasury, and is responsible for all deficiencies in the quality of the coin. A similar process, sanctioned by the sealed order of the Divan, attends the disbursement of cash at the general treasury; and the accounts are kept in the same style of real accuracy, and apparent confusion, which is usual in other parts of India.

The miscellaneous department, together with several indefinite duties, comprises two principal heads, *viz.*, first, the regulation of the Rája's establishment of state, and of his household; and secondly, the custody of the judicial records.

In the administration of justice, as in every other branch of the government, due regard has been given to the ancient institutions of the country, and to the doctrines of the Hindu law. There is no separate department for the administration of justice in Mysore, with the exception of kházis in the principal towns, whose duties are limited to the adjustment of ecclesiastical matters among the Muhammadan

inhabitants. Matters of the same nature among the Hindus are usually determined according to mámúl or ancient precedent, and where there is no mámúl, by the doctrine of the shástras, if any can be found to apply.

The Amil of each taluq superintends the department of police, and determines in the minor cases of complaint for personal wrongs; the establishment of Kandachár peons gives great efficiency to this department. Three Subadars, for the purposes of general superintendence, have been established over the respective provinces of Bangalore, Chitaldroog and Bednur; and these officers direct the proceedings in all important cases, criminal and civil. On the apprehension of any persons criminally accused, the Subadar or the Amil, if he sees cause for public trial, orders a pancháyat, or commission of five, to be assembled in open cutcherry; to which all inhabitants of respectability, and unconnected with the party, have the right of becoming assessors. The proceedings of this commission, in which are always included the defence of the prisoner, and the testimony of such persons as he chooses to summon, are forwarded to the Divan, accompanied by the special report of the Subadar or Amil. In cases of no doubt, and little importance, the Divan makes his decision on the inspection of these proceedings. In matters of difficulty, or affecting the life or liberty of the prisoner, the case is brought for final hearing before the Divan, who pronounces his sentence, assisted by the judgment of the Resident.

The administration of civil justice is conducted in a manner analogous to that of the criminal. The proclamation which announced a remission of all balances of revenue, among other benefits which it conferred on the people of Mysore, shut up the most productive source of litigation. The Amil has the power of hearing and determining, in open cutcherry, and not otherwise, all cases of disputed property not exceeding the value of five pagodas. Causes to a larger amount are heard and determined by a pancháyat composed as above described: and as publicity is considered to afford an important security against irregular or partial proceedings, the respectable inhabitants are encouraged to attend as assessors, according to their leisure and convenience. In cases where both the parties are Hindus, the pancháyat is usually composed of Hindus; where the parties are of different sects, the pancháyat is formed of two persons from the sect of each party, and a fifth from the sect of the defendant. In plain cases, where no difference of opinion has occurred in the pancháyat, the Amil confirms their award, and forwards their proceedings to the Presence. In cases of difficulty, or variety of opinion, the proceedings are forwarded with the

report of the Subadar or Amil, to the Divan, who pronounces a final decision in communication with the Resident; or, if he sees cause, orders a re-hearing before himself. In all cases whatever, the parties have the right of appeal to the Divan; and his frequent tours through the country facilitate the practice of this right.

The form of proceeding in civil cases differs materially from the practice of English courts.

Before the trial commences, the plaintiff first, and then the defendant, are each required to give a circumstantial narrative of the transaction which involves the matter at issue; this narrative is carefully committed to writing, and twice read over to the party, who corrects what has not been properly stated; the document is then authenticated by the signature of the party, of two witnesses, and of a public officer. The correct agreement of this narrative with facts subsequently established, is considered to constitute strong circumstantial evidence in favour of the party, and its disagreement with any material fact to amount to the presumption of a fictitious claim or false evidence. The Hindu law seems indirectly to enjoin this branch of the proceeding. Testimony is received according to the religion of the witness, first for the plaintiff, and then for the defendant; and the members of the pancháyat, or assessors, and the witnesses called for the purpose, depose to matters of general notoriety. The pancháyat, in cases of difficulty, usually prefix to their award a few distinct propositions, explaining the grounds of their decision, which generally seem to be drawn with considerable sagacity. But the object in which the principles of proceeding differ most essentially from those of an English court is in the degree of credit which is given to the testimony upon oath. It appears to be in the spirit of English jurisprudence to receive as true the testimony of a competent witness until his credibility is impeached. It is a fixed rule of evidence in Mysore to suspect as false the testimony of every witness until its truth is otherwise supported. It follows as a consequence of this principle, that the pancháyats are anxious for the examination of collateral facts, of matters of general notoriety, and of all that enters into circumstantial evidence; and that their decisions are infinitely more influenced by that description of proof than is consistent with the received rules of evidence to which we are accustomed, or could be tolerated in the practice of an English court.

The administration of the revenue is committed, under the control of three principal Subadars, to Amils presiding over taluqs sufficiently limited in extent to admit a diligent personal inspection of the whole of their charge; the number of these taluqs has varied, as convenience seemed to require, from 116 to 120.

[Each taluq is divided into Hoblis, which pay from 4,000 to 9,000 pagodas. These are managed by a set of officers who are interposed between the Amildars and Gauḍas. The head person of a Hobli is called a Párpatti, and by the Musalmans a Shekdár. He visits every

village to see the state of cultivation and of the tanks, and settles disputes that are above the reach of the Gauḍa's understanding. In this he is always assisted by the advice of four old men. He ought not to inflict any corporal punishment without the orders of the Amildar. The Párpatti receives the rents from the Gauḍas and transmits them to the Amildars. Most of these officers are Brahmans; very few are Sudras. In each Hobli there are two accountants, called Gaḍi Shánbhógs, but by the Musulmans named Sheristadars. Until Tipu's time these officers were hereditary, and they have always been Brahmans. In each Hobli, for every 1,000 pagodas rent that it pays, there is also a Manigár, or Tahsildar as he is called by Musalmans. These are the deputies of the Párpatti to execute his orders. They also are all Brahmans. The whole of the Hobli establishment is paid by monthly wages.]

The Divan enters in a separate account ancient allotments of land to the local institutions of the hamlets and villages (involving a detail of 41,739 objects and persons, and an annual expense of 89,489 pagodas), and excludes the amount in the first instance from the account of the gross revenue, as it can never become an available source of supply.

The four distinct heads of revenue are—Land-tax, Sáyar, Toddy and spirituous liquors, and Tobacco.

The head of land-tax comprises, besides the objects which it describes, the house-tax and the plough-tax, being an impost, varying in different districts according to ancient practice, of about the average rate of one Kanthiraya fanam annually on each house and plough. The province of Bednur, and the districts of Balam and Tayur, with all plantations of trees not annual, pay a fixed money rent. The whole of the dry ground of Mysore pays also a fixed money rent, with the distinction, however, regarding the tenures of the lands, which has been noticed. The rent to be paid for dry land accordingly does not depend on the quantity cultivated, and the Amil no further concerns himself with that object than to observe whether the ryot sufficiently exerts his industry to be able to pay the rent. All Amils are authorized to make takávi advances when necessary. The superior certainty of a dry compared to a wet crop, is limited to wet ground under reservoirs; and the uncertainty of the quantity of water which may be collected, and of course of the extent of land which can be watered, is among the principal reasons which have hitherto prevented the adjustment of a money rent for such lands; and have continued the ancient practice of the wáram, or the payment to the government of a moiety of the actual crop. The wet cultivation which depends on the embankments of the

Kaveri and other rivers which have their source in the western hills, is of a different description, and is usually considered the most certain of all the crops ; for such lands the payment of a money rent has been introduced, and is gradually gaining ground. In some few cases such lands are held under an ancient fixed rent, much lower than the present rates.

The original proclamation which pledged the Divan to the ancient Hindu assessment, both of the land and of the sáyar, has in both instances been attended with its appropriate advantage and inconvenience. Each district having at remote periods been governed by distinct authorities, each has its peculiar rates of sáyar, founded on no principle of general application. On areca-nut, for instance, it has been the ancient custom to levy a duty in money not *ad valorem* ; but as the areca-nut of different districts differs materially in quality and price, the duty, if it were uniform, would afford no means of computing the correct value of the export ; and it is certain that the increase and decrease in the duty is by no means in the rates of the value, but has been fixed in each district on arbitrary considerations which cannot now be traced. The sáyar in some districts has been farmed ; and in others it has been held in amáni, a difference which still further increases the intricacy of the subject.

The revenue from toddy and spirituous liquors is generally farmed.

The fourth head of revenue, tobacco, is generally farmed, with proper restrictions regarding the selling price. Betel-leaf produces a revenue in one town only of Mysore, namely Chitaldroog, where the tax existed previously to the annexation of that district to Mysore ; the produce of this tax is included with that of tobacco.

Under the expenses of management, the first head is that of Jágirs and Ináms for religious purposes. The detail delivered by Purnaiya to the Mysore Commissioners, as allowed by Haidar Ali Khan, amounts to—

	Kanthiraya Pagodas.
Devasthans and Agrahars	1,93,959
Maths of Brahmans	20,000
Muhammadan establishments as allowed by Tipu Sultan	20,000
Total	2,33,959

The particular attention of the Resident was directed to the diminution and check of these expenses, and chiefly to guard against the alienation of land to Brahmans, an abuse which was considered to be not improbable under a Hindu Government administered by Brahmans. The Divan in the first instance assumed the possession of the lands of all descriptions, principally with the view of revising the

grants and alienations of every kind, and this operation enabled him to make many commutations of land for money payment, with the consent of the parties.

The second head in the expenses of management is the repairs of tanks. The ruin and neglect into which every public work of this kind had fallen during the administration of Haidar Ali and Tipu Sultan caused the expenses in the two first years to be large.

The whole of the disbursements charged under the general head "expenses of management," amounted in the fourth year (including the expense of rebuilding the forts of Bangalore and Channapatna, which certainly does not belong to such a head) to 510,000, which is 20⅓ per cent. on the gross revenue; but ináms and jágirs (under whatever head it may be customary to charge them) are not correctly an expense of "managing the revenue," and the explanations which have been already given, show that a very moderate portion of the Kandachár ought to be considered as a revenue charge. If one-third should be considered as the fair proportion, the expenses of management would then be reduced to 342,736, and its relation to the gross revenues of the same year would be 13¼ per cent. In the fifth year these expenses amounted (exclusively of the repair of forts) to 486,011, or 24,000 less than in the fourth year.

These considerations belong principally to the question of the actual expense of collecting the revenue, and the technical mode of reckoning its net produce. If the sums discussed are not brought to account in that manner, they will come to be inserted as a charge in the general expenses of the government; and as the principal part of the income of the Divan is derived from his commission on the net revenue, it is creditable to his moderation to observe that the account of the net revenue is framed in a mode which is unfavourable to the amount of his income.

It may be convenient in this place to state, that according to this mode of reckoning, the net revenue, by deducting from the gross amount the whole of the charges above discussed, amounted in the first year to pagodas, 15,99,872; second year, 17,94,102; third year, 19,78,899; fourth year, 19,89,436; fifth year, 21,27,522. The gross revenue for the same years, after deducting the balances not recovered in the four first years, was:—first year, pagodas 21,53,607; second year, 24,10,521; third year, 25,47,096; fourth year, 25,01,572; fifth year, 25,81,550. The balances not recovered for the fifth year are not ascertained, and the sum stated is the whole jamábandi.

In the general disbursements of the government, the first head of subsidy to the Company, pagodas 8,42,592, is a fixed charge.

There is but one other head of general disbursements, *viz.*, the military establishment. The outline presented by Purnaiya to the Commissioners for the affairs of Mysore, estimates the number of troops necessary to be kept in the Rája's service for the security and tranquillity of the country, exclusively of the Company's troops maintained under the provisions of the subsidiary treaty, at "Five thousand Horse; from four to five thousand Barr, formed after the manner of the Company's sepoys; and two thousand peons." The number which he considers to be necessary, after an experience of five years, is:—Horse, 2,000; Barr, 4,000; peons in constant pay, 2,500; exclusively of a garrison battalion of 1,000 men on inferior pay for Mysore, and about an equal number of the same description for Manjarabad. The 2,000 Horse to be inclusive or exclusive of 500 stable Horse, according to the circumstances.

At a later period, in 1805, Purnaiya is said to have represented the necessity of establishing separate departments of justice at Mysore; and a Court of Adalat was accordingly constituted, consisting of:—two Bakshis as Judges; two Sheristadars and six persons of respectability taken from the Mutfarkhat, and styled Cumtee Wallahs, Hakims or Pancháyatdars, who formed a standing Pancháyat; with one Kházi and one Pandit.

There was no regular form of proceedings laid down for the observance of this court. The standing pancháyat, composed as described, conducted the inquiry, *vivâ voce*, before the presiding judge or judges. No muchchalike was demanded from the parties binding them to abide by the verdict, nor was the latter presented by the pancháyat to the judge in writing. The plaintiff and defendant used to attend in person, and an examination was made of such witnesses and documents as they might have to produce; the witnesses were not examined upon oath, nor had the practice of receiving the written statements and counter statements called plaint, answer, reply and rejoinder, been then introduced.

The two judges first appointed were Vyása Rao and Ahmed Khán. The former was chief in rank, and possessed much of the confidence of Purnaiya, to whom he was in the habit of referring frequently in the course of the day such judicial questions as arose; whilst Ahmed Khán merely attended the minister in the evening to make his formal report and receive instructions. Besides his functions of judge, Vyása Rao used to hear and determine, in the same court, all complaints whatever preferred by ryots on revenue matters, and on these subjects Ahmed Khán never exercised any control. In such disputes alone were muchchalikes or bonds taken from the applicants, binding them

to abide by the decision which might be passed on their case. Vyása Rao was also Bakshi of the Shagird Pesha or household department (in itself a very laborious office), as well as of the Sandal cutcherry. Both judges sat at the same time, and the decrees were submitted to their united judgment; in forming which they were aided by the personal representation of such of the pancháyatdars as had heard the case. In a simple matter the decision was usually confirmed and sealed when presented to the judges for that purpose, and a report of the decision was made at the close of the day to the prime minister, whose final confirmation was in all cases necessary. But when any difficulty occurred, the judges were accustomed to represent at once the circumstances to Purnaiya, and take his directions.

In this court both civil and criminal cases were heard. Matters of caste were referred for decision to the Kházi or Pandit, aided by a pancháyat of such individuals as were considered competent. There was, however, little civil litigation in those days.

In the taluqs also, during Purnaiya's administration, a course of proceeding similar to that already described under the ancient Hindu rulers, obtained; the parties either named a pancháyat themselves, and agreed to abide by their decision, or they made application to the taluq authorities, who ordered a pancháyat, usually composed of the killedar and two or three of the principal yajmans and shettis, and the matter was settled as they decided.

Thus was civil justice administered as long as Purnaiya continued in office, during the course of which period Ahmed Khán, the second judge, died, and Vyása Rao continued to sit alone.

Government of Krishna Rája Wodeyar, 1811–1831.

At the time of the British assumption in 1831, Mysore consisted of the following six Faujdáris, subdivided into 101 taluqs:—

Faujdári.	*Taluqs.*	*Faujdári.*	*Taluqs.*
Bangalore } Madgiri }	... 27	Ashtagram	... 25
		Manjarabad	.. 11
Chitaldroog	... 13	Nagar	.. 25

Some administrative details relative to the period of the Rája's government during the preceding 21 years are subjoined, compiled from Notes on Mysore, by Colonel Morison, written in 1833.

Land Revenue.—Before the Bangalore and Madgiri districts were brought under the government of Mysore, the villages of the Mahratta parganas were rented by Deshmuks and Deshpándes, and in the Pályams a kind of village rent was made with the inhabitants of each,

and the revenue paid sometimes in kind and sometimes in money. There were certain rates of money assessment for wet lands, from 2 to 12 pagodas per khandi; and on dry lands from 2½ to 30 pagodas for the same quantity; while sugar-cane lands were taxed from 16 to 72 pagodas per khandi. The same mode was observed at the time of Haidar Ali and his successor Tipu Sultan. During the administration of Purnaiya, the lands were measured, but a regular assessment had not been accomplished. His government, however, was a strong one. The lands were regularly cultivated, and all affairs conducted with efficiency and decision.

In Chitaldroog, in the time of the Vijayanagar dynasty, it is said that the government share of the land produce was no more than one-third, but there was an additional tax of 1½ Durgi pagoda on each plough. The Náyaks, who subsequently reigned in Chitaldroog, established several new taxes, both in money and kind, on various occasions; for instance, at their festivals and religious ceremonies; but all these were consolidated by Haidar Ali and added to the kandáyam of the land. Tipu followed the same rule, but fixed an assessment of from 10 to 30 pagodas upon such lands as were cultivated from wells from which water was drawn by bullocks. As a relief, however, to the ryots, he granted rent free as much dry land as could be cultivated by one plough. Purnaiya, during his administration, and after the lands were measured, established the land-tax in Chitaldroog at various rates per lubu, three of which are equal to one kudu, or $\frac{1}{20}$ of the local khandi. This was in conformity with the ancient usage of that part of the country, but the assessment already introduced under the rule of the Pálegars, was still more rigid under the management of Purnaiya, and the only reduction afterwards allowed by the Rája was in the tax on sugar-cane lands.

In Ashtagram, in the time of Chikka Deva Rája, about the year 1673, a tax of two gold fanams per kudu, which is $\frac{1}{20}$ of the present khandi, was levied upon dry cultivation; while the produce of wet and garden lands, and of cocoa and areca-nut trees, was divided between the ryots and the Sarkar. Again he appears to have fixed a kandáyam upon lands, and newly established several other taxes called Bájebáb, &c. Very few of the ryots are said to have acceded to this arrangement. The produce of the land belonging to the ryots who did not was divided between the Sarkar and the ryots. Haidar Ali Khan appears to have introduced a grain rent in two of the Ashtagram taluqs, namely, Sosile and Talkad, and in other parts of Ashtagram it remained as in former times. During the management of Tipu Sultan, a partial survey took place in several taluqs and an assessment both in money

and in kind was levied. The grain from the taluqs of Mysore Ashtagram, Patna Ashtagram, Sosile and Talkad was stored at the capital. During the administration of Purnaiya, the lands were regularly measured, the productive powers of wet lands were fully ascertained, and an adequate assessment fixed. Nothing new appears to have taken place in the time of the Rája.

In Manjarabad faujdári, Krishnarajkatte, Arkalgud, Harnhalli and Garudangiri were the ancient possessions of the Mysore princes, in whose time the tax for wet lands was at the rate of 5½ pagodas in Krishnarajkatte, and 3 pagodas in Arkalgud; a tax of from 2 to 5 pagodas per khandi on dry lands had been long established. There was no tax upon wet lands in the other two taluqs, the produce having been divided between the ryots and the government, and the tax upon dry land was from to per khandi. In the pályam of Aigur, composed of the taluqs of Maharajandurga, Manjarabad, Sakkarepatna, Belur, and Hassan, Sivappa Náyak, the chief of Nagar, established his own assessment called shist, while it was in his possession; and it still existed, with some few alterations, even after the country reverted to the palegar of Aigur. There appears to have been no measurement of land in any part of this territory. The shist amounting to a certain sum was fixed upon a given quantity of land, including a proportion of dry, wet and garden land. During the management of Haidar Ali and Tipu, the village rent was irregular, being disposed of by competition and collected accordingly. In the time of Purnaiya, the public servants went so far as to ascertain the condition of each individual, as in the ryotwar; but during the management of the Rája, the country reverted to the injurious system of renting the villages to the highest bidder. The land-tax in Narsipur taluq, in the time of the Pálegar of that place, varied from 6 to 12 pagodas a khandi for wet lands, and from 1 to 6 pagodas a khandi for dry lands; the produce of areca-nut trees and a part of that of cocoanut trees was divided between the ryots and Sarkar, and part of the produce of the latter trees was assessed at 1 fanam per two or three trees. Haidar Ali and Tipu continued the system of village rent; but much improvement was introduced by Purnaiya in having erected several dams on the river Hemavati, and dug about six water-courses, which proved highly beneficial to cultivation, while the mode of collection was revised as in other places, and affairs generally improved. Nothing new was introduced by the Rája. Banavar formerly belonged to the pálegar of Tarikere, and in it the system of village rent appears to have existed first and last.

In Nagar, Sivappa Náyak made an assessment in the year 1660,

called shist, on the lands. This assessment was a most judicious one, consistent with the localities and general condition of the country. Several taxes called patti were afterwards levied by his several successors, which ultimately became equal to the shist originally fixed, so that the actual beriz of the country was in time nearly doubled.

The amount of revenue of all descriptions in Mysore for the year 1831–32, was Kanthiraya pagodas 20,88,978, of which the land revenue was said to be 16,18,831; the amount of sáyar, including the monopolies of the five articles, *viz.*, tobacco, betel-leaves, ganja, toddy and arrack, was 4,01,108, and that of the other taxes of various kinds, under the head of Bájebáb, was 69,039.

The amount of Kanthiraya pagodas 16,18,831, said to be the land revenue, did not, however, wholly belong to it; for it appears that various taxes, both connected and unconnected with the land revenue, were mixed up with that head. The land revenue properly so called was known under two designations only, *viz.*, kandáyam and shist: the first to be found in every part of Mysore, with the exception of Nagar, and the second to be found in the Nagar district only. The inferior taxes directly connected with the land revenue and mixed up with it consisted of 83 different designations, under which these taxes were levied. The inferior taxes unconnected with the land revenue, but also mixed up with it like the foregoing, consisted of 198 different designations, some of which prevailed all over Mysore, some less in general, and some to be found only in one or two of the taluqs. In endeavouring to classify these inferior taxes, some appear to belong to the Mohatarfa, some to the Bájebáb, and some to the Sáyar.

The country was under the management of Purnaiya for eleven years, that is from 1800 to 1810. The highest amount of the jamábandi during that period was 31,79,000 Kanthiraya pagodas, which was in the year 1809; the average during his management being no less than 27,84,327 pagodas. The country was managed by His Highness the Rája for twenty-one years, from 1811 to 1831. The highest amount of the jamábandi during that period was 30,26,594, and the average was 26,53,614 pagodas. The difference between these averages, 1,30,713 Kanthiraya pagodas, is therefore the amount of the annual decrease during the administration of the Rája. It would be very desirable to ascertain what quantity of land produced the revenues above mentioned, but unfortunately there were no accounts showing the necessary information in any of the cutcherries of the Huzur. This must be sought for in the village accounts and from the shánbhógs.

It was an ancient rule in the country, and duly provided for in the instructions to the district servants, that the shánbhóg or the village

accountant, the patel, and shekdar if present, should assemble in every village before the commencement of the year, and then collect all the inhabitants of the village for the purpose of speaking to them upon the subject of the rent, and concluding with them a revenue arrangement for the year, duly recording the name of each person, the extent of land to be cultivated by him, and the amount of revenue payable thereon; as also the extent of the land (if there were any) intended to be cultivated as wáram, and issuing to each ryot of the kandáyam land a kandáyam chit for the year. It was only indeed by means of these preliminary arrangements that any satisfactory data could be obtained as the foundation of the jamábandi, and it is fortunate that the custom so far prevailed in procuring so useful a document preparatory to the annual jamábandi whereby the extent of land of every description in every village could be easily known.

The whole extent of cultivated land in Mysore appears to have been in the proportion of three-eighths wet to five-eighths of dry cultivation. The lands not being classed, it is impossible to show their description, but upon an estimate it appears that the land of red colour was five-sixteenths, the land of the mixed sorts was one-fourth, black clay three-sixteenths, and that mixed with chunam, stones, pebbles, including rough land, was one-fourth.

The water-courses taken from rivers and mountain torrents were rated at 1,832 in number; the tanks, great and small, at 19,817; and the wells at 16,371. The grain irrigated from these was chiefly paddy, but garden articles were reared by the same means. All other crops depended on the periodical rains, but for want of accounts at the Huzur, it is not practicable to ascertain the quantities of land supplied with water from each of these resources.

The crops being cut at the proper periods, the first deductions from the grain were the rusums issued at the threshing-floor to the Bárabalúti. The rates at which these different persons were paid were various in the several Faujdáris. The exact proportion of the produce thus appropriated is shown in the following table:—

Faujdáris.	Centage of the Rusums to the gross produce when lands were under Kandáyam.	Centage of the Rusums to the gross produce when lands were under Wáram.
Bangalore and Madgiri ...	5	5
Chitaldroog	1½	20
Ashtagram	8¼	8¼
Manjarabad	6¼	3
Nagar	{ 12½ { 15	— —

If the produce were that of kandáyam lands, it was taken by the inhabitants to their houses on paying the rusums at the above rates. If the produce were that of the wáram lands, the rusums were given in like manner to the Bárabalúti in the first instance; the remainder being then divided between the Sarkar and the ryots who had cultivated the same.

The general average kandáyam or government rent was usually about one-third of the gross produce. This at least was the case in Bangalore, Madgiri and Ashtagram. In Chitaldroog, however, the kandáyam seems to have been about 18 per cent. more than one-third; but as labour was cheaper there than in other Divisions, the ryot was nearly as well off as anywhere else. In Manjarabad, the assessment was 5 per cent., and agricultural charges nearly 2 per cent. more, rendering the surplus to the ryot nearly 7 per cent. less. In Nagar the agricultural charges are higher than elsewhere, so that the kandáyam falls off 3 per cent., and the surplus to the ryot 9 per cent., below the proportionate rate of Bangalore, Madgiri and Ashtagram.

In other countries there are ryots who pay a large sum in rent to government, in some instances to the extent of 10,000 rupees a year. It is not so in Mysore, and from many inquiries it appears that amongst 384,702 ryots, the highest, the medium, and the lowest kandáyam rent paid by one individual in the several Faujdáris were as shown in the following table :—

Faujdáris.	Highest.	Medium.	Lowest.
	Rs.	Rs.	Rs.
Bangalore ... ... } Madgiri ... ... }	50	10	3
Chitaldroog	100	50	1
Ashtagram	200	150	2
Manjarabad	100	50	3
Nagar (including areca-nut) ...	300	150	10

There was seldom to be found more than one village in the possession of one individual, nor did one person anywhere possess one description of land only; for each ryot having dry land, had generally a proportion of wet and garden also, at all events one or other of the two last. The condition of the people in Mysore seems to demand this arrangement, which is everywhere of easy accomplishment in Mysore.

The highest, medium, and the lowest extent of land, including wet and dry, held by one individual in each Faujdári, were ascertained, and are exhibited in the following table :—

Faujdáris.	Highest.	Medium.	Lowest.
	Khandis.	Khandis.	Khandis.
Bangalore ... ... } Madgiri ... ... }	9	3¼	¾
Chitaldroog	20	12	½
Ashtagram	12	5	1
Manjarabad	30	15	1
Nagar	0	0	0

The rates of kandáyam were various throughout the country. The following is a general abstract of the average amount of kandáyam assessed upon one khandi of land of all descriptions in Mysore in Kanthiraya pagodas :—

Faujdáris.	Wet land.				Dry land.				Cocoa garden.				Garden land.				Sugar-cane.			
	1st sort.	2nd sort.	3rd sort.	4th sort.	1st sort.	2nd sort.	3rd sort.	4th sort.	1st sort.	2nd sort.	3rd sort.	4th sort.	1st sort.	2nd sort.	3rd sort.	4th sort.	1st sort.	2nd sort.	3rd sort.	4th sort.
Bangalore ...	0	0	0	0	20	16	12	10	0	0	0	0	16	12	10	8	60	50	40	30
Madgiri ...	5	4	3	2	16	12	10	8	30	25	20	16	0	0	0	0	15	13	10	8
Chitaldroog ...	12	9	7	6	25	18	13	10	20	15	12	10	0	0	0	0	32	28	25	20
Ashtagram ...	15	10	5	4	25	10	8	3	50	38	25	12	10	8	6	4	38	26	14	8
Manjarabad ...	12	8	5	3	10	6	3	1-½	25	15	10	0	0	0	0	0	22	15	10	0
Nagar ...	6	5	4	3-5	10	8	6	5	20	13	10	6	0	0	0	0	5-7-8	4-7-8	4	3-5

It is now necessary to advert to the tenures of the land.

1st. The ryots cultivating *kandáyam* lands, held them in some instances from generation to generation, paying a fixed money rent ; this being now the general meaning of the word kandáyam, whatever it may have been originally.

2nd. Ryots cultivating the lands under the *wáram* or *batáyi* system, whether in the same or other villages, were nothing more than hired labourers. They cultivated the land and received in return a share of the produce. The people of any village in which these lands existed had the preference before others ; nor could they be refused the work, if they had tilled the lands for a number of years ; that is, if they still chose to cultivate the same. In some cases the ryots of the same village, and even those from other villages, were forced to undertake the cultivation of the wáram lands which belonged to the Sarkar.

3rd. In certain places there were tanks called *amáni taláv* not belonging to any particular village. The lands under these reservoirs were cultivated by ryots collected from several villages in their neighbourhood, who received their due share of the produce, under the superintendence of the public servants.

4th. There were ryots who cultivated *shráya* lands, that is, lands held by those who engaged to pay a reduced kandáyam for three or four years, and from the last year to pay the full amount.

5th. There were ryots who held entire villages for a fixed rent called *káyamgutta*, for which they received regular grants without any period being specified. This tenure had its origin in the time of the Rája to favour certain individuals.

6th. There were ryots called *jóḍidárs*, or those who held lands under a favourable rent, which lands or even villages were formerly inám enjoyed by Brahmans and others rent free until the time of Tipu Sultan, who, from his aversion towards the Hindu religion, sequestered the joḍi lands, and levied upon them the full assessment. The Brahmans, however, continued to hold them, paying the full assessment rather than give them up, hoping for more favourable times ; accordingly in the administration of Purnaiya their complaints were heard, and they received the indulgence of a small remission of the Sultan's assessment, and continued to hold the lands under the denomination of joḍi, though no longer inám. In a very few instances, however, some lands continued in joḍi, as given in ancient times, and were as such still enjoyed.

Ryots possessing kandáyam lands and paying the full assessment could only be dispossessed when they failed to pay their rent to the Sarkar. Ryots possessing kandáyam lands but paying less than the fixed assessment or original kandáyam might be dispossessed in favour of ryots offering an increase, if they did not choose to give the same. Suppose, for example, that 12 pagodas was the original assessment, but that it had been reduced to 8 pagodas in consequence of the death or desertion of the ryot, when it was transferred to wáram and cultivated on the Sarkar account, occasioning the revenue to be reduced to 8 pagodas as first mentioned. Supposing then that 10 pagodas were offered and accepted ; but as this offer was still short of the former kandáyam, though above what could be realized under the wáram management, offers would continue to be received from anyone willing to give the full amount, though the actual incumbent had the preference if he should choose to pay the full assessment. If not, he must make way for the new tenant willing to pay in full.

The ryots who cultivated areca-nut gardens appear to have had the right of hereditary possessors ; they were accordingly accustomed to sell or mortgage their property. Supposing these proprietors to fail in payment of the Sarkar, and that the same should fall into arrear, the proprietor might sell his lands and pay the dues of government, when the purchaser had the same rights in the soil as were possessed by his predecessor.

There were ryots who possessed land which either themselves or their ancestors had reclaimed from the jungle at great expense. These lands were also held as hereditary possessions, with the right of disposing of them by sale or otherwise.

There were also ryots who held their lands by long descent from generation to generation, who were in the habit of transferring the same to others, either by sale, or mortgage, &c.

There were ryots who cultivated lands called *kodagi*, on which an invariable rent was fixed, not liable to any change on account of the seasons or otherwise. These lands were also saleable, and at the present day continue to be disposed of at the will of the holders. These lands originally were ináms from the sovereigns or the villagers, but having been subsequently assumed by the Sarkar, an unchangeable rent was fixed upon them. Again, some ryots cultivated lands called kodagi lands, which were originally inám granted by the Sarkar for the payment of a sum of money as a nazar, but latterly subjected to the same fate as the lands described above. Lands of both descriptions were also to be found in the Manjarabad district.

There were ryots who cultivated land for an assessment called *shist*, and who had been subjected at different periods to additional imposts since the shist was originally established by Sivappa Náyak; they still had pretensions to a proprietary right in the soil.

There were ryots who cultivated lands called *rekanast*, which under the reign of the princes of Vijayanagar had an assessment called Ráyaréka, but having subsequently been overrun with jungle, no Ráyaréka or assessment was levied thereon. They were then called rekanast, which means without assessment, nor was any shist put upon them by Sivappa Náyak, because they were not cultivated. When reclaimed, however, they became liable to assessment at the average rate of the neighbouring lands, still retaining the same names. These lands are accordingly described as a distinct variety of tenure still known in the Nagar district.

There were ryots called joḍi agrahardars, cultivating lands in some villages of Nagar under an assessment called *joḍi*, which might be equal to one-fifth, one-fourth, one-third, or even one-half of the shist of the neighbouring villages. These lands were formerly inám or sarvamányam given to Brahmans, who long enjoyed them as such, but being resumed by the Sarkar, taxes were put upon them in the manner above mentioned. The descendants of the original holders, or those who may have purchased the lands from them, enjoyed them for the payment of the fixed shist; and it appears that the sale and mortgage of these lands was going on to the present day, the transfer being fully recognized by the officers of government.

There were ryots who cultivated lands called *gaddi batta*, which signifies lands paying rent in kind, which were only met with in the taluqs of Ikkeri, Sagar, Mandagadde, Koppa, and Kavaledroog.

The ryots in possession of the lands held under the tenures above described, appear in general to have paid their rents to the Sarkar, not direct, but through the means of a renter, capable of managing so intricate a business, from possessing a complete knowledge of all the local customs. Sometimes the patel was a renter of the village, and collected the revenue from the people without the intervention of the Sarkar servants. This sort of *village rent* had as many varieties as are indicated by the different modes now to be mentioned.

The ordinary mode was effected by the Amildar, Sheristadar, and some other servants setting out together in the month of January or February for the purpose of inspecting the crop. During the tour of the Amildar at this season, he prepared an estimate of the November crops (already in heaps) in communication with the sheristadars, shekdars, shánbhógs and patels, as also an estimate of the expected revenue from the May crop. In the same manner an estimate was made of the sugar-cane and other produce now coming forward, when the total being made out, the rent was given to the patel or gauḍa of the village, and the usual rent *muchchalike* taken from him for the payment of the amount, including *suvarnádáyam*. The patel being the sole renter of the village, any suvarnádáyam which may have been already collected was credited to him. He considered himself answerable for the rest, took charge of all the affairs of the rent, distributed the due shares of the different crops to the ryots, disposed of the government share in the manner he thought best for his own benefit, collected kandáyam from the inhabitants, and paid his rent to the Sarkar. In case of any part of the revenue falling in arrears, either from the death, desertion, or poverty of the ryots, or from any other causes, the amount, if large and irrecoverable, was remitted after a full investigation of all the particulars of the case ; otherwise the renter remained answerable for the payment of the whole of the rent. This mode of village rent generally prevailed in the faujdáris of Bangalore, Madgiri, Chitaldroog and Ashtagram.

In the villages of Manjarabad, the village rent was given for two years, while the rent of one village might be taken by two or three individuals. If a village were desolated, it was rented to any individual willing to take it. No rent was payable the first year, but engagements must be entered into to pay a small rent the second year, increasing the same gradually every subsequent year, until it came up to the former fixed rent.

In Nagar, there was a permanent assessment called shist. A general review was made of the lands at the beginning of the year to ascertain the probability of their being cultivated. The Amildar, when he proceeded to the village for this purpose in the month of January, ascertained the general state of cultivation and concluded the rent with the patel of each village. If, however, the whole land of any individual ryot was kept uncultivated from poverty, the revenue of that land was remitted. If a part only of the land of one individual was cultivated, no remission was allowed on account of the part uncultivated, the whole being included in the jamábandi. The wáram system was but little known in Nagar, but when it did occur, the usual course of taxing that produce was observed as in other parts of the country.

The mode of village rent called *wonti gutta* was when two, three, or four individuals (whether of the same village or others) made an offer to rent a village. After its circumstances were duly ascertained in the usual manner, and the terms were agreed on, the Amildar granted the rent and took security for its payment, and in such cases there were no remissions, the renters being answerable for the amount settled. They were, however, obliged to enter into fair agreements with the ryots, which were to be

strictly kept, so that the ryots might not have to complain of any exaction or oppression. If any arrears should be caused by the death, desertion, or the poverty of the ryots after the rent was fixed, the loss must be borne by the renter. When the ryots were averse to any particular renter or renters, it was not unusual for them to take the rent themselves, declaring they would otherwise leave the village. In such cases a preference was given to their offers.

The mode of village rent called *praja gutta* may be described as follows :—The Amildar proceeded to the village at the usual period of the year (that is December or January), called for all the ryots, and desired them to enter into engagements of the rent of praja gutta. The amount to be rented was in most cases the same as in the preceding year. Any lands which could not be cultivated, either from the death, desertion, or poverty of certain ryots, was now struck off, and fresh lands, if there were any, added to the rent ; when a general muchchalike was taken from the whole of the ryots, or from such portion of the principal ones as might engage for the rent : if the actual produce fell short, the loss was borne by the whole village. If a higher offer were received, even after the conclusion of these arrangements, the rent was cancelled and given up to the other, but the rent in this case would be called wonti gutta. The rent once settled in one year was allowed to continue for the next three or four years. This kind of rent appears to have been a last resource, to which the public officers had recourse when every other had failed ; but these rents, *viz.*, wonti gutta and praja gutta, were only very partially known, and in the faujdári of Ashtagram.

The village rent called *kulgar gutta* was when it was managed by the kulgars. Of these there might be six or eight in a village, together with fifteen, twenty, or thirty common ryots. The Amildar proceeded to each village in the month of December or January, investigated the real state of the different sources of revenue with reference to the collections in the past year and the condition of the ryots, fixed the amount of the rent, and gave it up to one of the kulgars of the village, who sublet his rent to the other kulgars, who again divided their respective allotments amongst the ryots under them. The only way they made a profit in their rent was by exerting themselves to extend the cultivation. The ryots of the village were answerable for their rent to the kulgars, these to the chief kulgar, who in his turn, as the ostensible renter, was answerable to the Sarkar, which in the case of this rent allowed no remissions. If any of the ryots had either died or deserted, his lands, as well as claims against it, were divided among the kulgars themselves. If there were no kulgar in the village to take the office of renter, a shánbhóg might become so, when he was called the pattegar.

The village rent called *chigar katle* comes next to be mentioned. A proportion of land including wet and dry, and requiring fifty seers of seed grain, was called a chigar, of which there might be from sixteen to eighteen in a village, each paying a fixed rent of from 3 to 5 pagodas ; each chigar was usually held by several ryots, there being a principal ryot for every chigar of land, and one of these annually rented the whole village, sub-letting the

different chigars to the other principal ryots : such villages were generally rented in the month of December or January, when the state of the crops was ascertained, but this species of rent was only to be found in one taluq, Hassan, in the faujdári of Manjarabad.

There was also a village rent called *blah katle* in the same taluq, the blah meaning a small portion of land differing in extent from the chigar, but having the same mode of assessment ; and if any of the ryots died or deserted, a portion of rent was remitted by the Sarkar, giving that land to others.

Sáyar.—There were certain stations called *kattes* in every taluq, where the sáyar duties were levied on all articles. The total number of these stations was no less than 761, varying in number from one to twenty-one in each taluq. The duties levied were of three kinds :— 1st. Transit duty upon such goods as passed on the high roads without coming into towns. 2nd. Transit duties on articles passing out of the towns. 3rd. Consumption duties upon goods used in towns. Whenever goods arrived at a station, the place to which they were destined was ascertained, when the duties were levied according to rates said to be established for the purpose on the spot.

The rates of duties were various, those observed in one station being different at another. The duties were not charged *ad valorem*, but according to the kind of each article, neither was there any regularity with respect to the quantities chargeable with duties; for example, a cart-load, a bullock-load, an ass's-load, a man's-load, &c., were charged with so many fanams each. In some of the taluqs, goods charged with duties at one station were liable to be charged again with a reduced but extra duty at some other place, even in the same taluq ; the extra duty was called *anup* and *kottamugam*. In some taluqs goods were liable to duties at every station of the same taluq through which they had to pass. In others, the duties levied on goods conveyed by a particular class of merchants were different from those charged when conveyed by others. In some taluqs the duty was at a fixed rate provided they passed by a certain road. If goods chargeable with duty in one year should be kept till the next year, and then sent away, they were again chargeable with duty.

In several of the districts periodical markets were held, generally once a week, when fixed taxes were levied upon the shops. 1st. Every shop paid a few cash, and this tax was called *addi kasu*. 2nd. Every vegetable shop paid something in kind, under the name of *fuski*. 3rd. Every cloth shop paid a tax of from 2 to 6 cash, called *wundige* or shop duty. 4th. There was a tax called *pattadi*, which in some places was called *karve* and *bidagi*, levied on every cloth shop, grain, mutton, and arrack shop, &c. There was likewise a certain tax upon every

loom ; also upon betel-leaf plantations, areca-nut gardens, sugar-cane plantations, and upon every plough of the ryots, exclusive of the land revenue. There was a tax on the cattle of merchants. The taxes on the above were collected some annually, some monthly, and daily from temporary shops. In short, there was not a single article exempt from custom duties.

It is true that tariff tables, called *prahara pattis*, exhibiting the rate of duty to be paid on each article, were at one time issued by the Sarkar, and posted up in most of the kattes, but the Government itself was the first to infringe the rules, by granting *kauls*, of entire or partial exemption, to certain favoured individuals ; and the same mischievous system was further propagated by the granting of similar kauls by successive izardars and sub-renters to their own particular friends during their own period of incumbency, and which became confounded with those granted by the Sarkar. The consequence was that in the course of time the prahara pattis were looked upon as so much waste paper, and each katte came to have a set of mámúl or local rates of its own, which were seldom claimed without an attempt at imposition, or admitted without a wrangle. The usual result was an appeal to the Sáyar Shánbhóg of the place, who became the standing referee in all disputed cases, which he may be supposed to have decided in favour of the party which made it most advantageous to himself.

It became necessary therefore for the trader to purchase the good will of every sáyar servant along the whole line of road by which he travelled, or to submit to incessant inconvenience and detention. He was thus subject to constant loss of time, or money, or both ; and the merchants were unable to calculate either the time which their goods would take to reach a particular spot, or the expenses which would attend their carriage. Even as to the kauls which certain merchants enjoyed, there were perplexing differences in the way in which the deductions were calculated. With some it was a fixed percentage to be deducted from the proper rate to be levied ; while with others the full rate was taken, but only on certain fixed proportion of the goods. Another fertile source of confusion and corruption was that, to gratify some particular izardars, certain merchants and certain productions were confined to particular routes ; and, if they travelled or were carried by another line of custom houses, the izardars of that line were made to pay compensation for the loss presumed to have been sustained by the renters of the prescribed line.

When it is considered that there was hardly a luxury, certainly not a necessary of life, which was not subject to pay the duty to the authorities of these 761 sáyar chaukis, and that some of these duties

were payable daily, some monthly, and some annually; while there were others of items which involved the necessity of a prying scrutiny into the most private and delicate domestic occurrences, it may be imagined that the system was calculated to interfere constantly with the comfort and the interests of every portion of the population. It is possible, indeed, that it may have been framed originally with some such idea, for a legend current in Mysore assigns the palm of wisdom among monarchs to a prince who invented 365 taxes, each leviable on its own particular day, so that no twenty-four hours could pass without the idea of the prince's power having been brought home to each of his subjects in the most unmistakable way.

Great as was the direct annoyance to the people, the indirect, by the obstacles thrown in the way of trade, became still greater. In fact stranger merchants were practically debarred from entering the country, and the whole of the trade, such as it was, became monopolized by the Sáyar contractors or their servants, and a few practised traders who were in close alliance with them or knew how to command powerful interest at the Darbar.

The systems in force in the four different Divisions of Nagar, Ashtagram, Bangalore and Chitaldroog, were widely different. Under the Rája's administration, the Sáyar department in Nagar was divided into three Ilákhas or branches. 1st. *The Kauledroog Sarsáyar*, including the Chikmagalur, Koppa, Kauledroog, Holehonnur, Lakvalli and Shimoga taluqs, and the kasba town of Channagiri. 2nd. The *Ikkéri Sarsáyar*, comprising the Honnali, Sagar, Shikarpur and Sorab taluqs, together with the kasba of Bellandur in Nagar taluq. 3rd. *The Phoot Taluq Izára*, comprehending the Kadur, Harihar, Tarikere and Channagiri taluqs, with the exception of the kasba of the last, which was included in the Kauledroog Sarsáyar.

The Phoot Taluq Izára was rented by a Wot Izardar, who bound himself by his muchchalike to realize a certain annual sum for the Sarkar, and whatever he could scrape together or extort beyond that sum was his own property. The two Sarsáyar Ilákhas were made over to the management of Sarsáyar Amildars, nominated on the *sharti* system of bestowing the appointment, without reference to qualification, on the man who would bid highest for it. It was stipulated that they were not to keep the executive in their own hands but were to sublet it to others, over whom they were to exercise vigilant control, and in particular to prevent all undue exactions and oppression. But these were mere words. These Amildars almost invariably retained the collections in their own hands, and knowing that they were liable to supersession at any moment, their sole object was to feather their nests in the shortest possible period.

In cases where the agency of sub-renters was really employed, the same description will apply, with the additional touches which must be given to enable the reader to understand that the trader was even more victimized than when his oppressor carried on his transactions on a larger scale. These sub-renters themselves obtained their appointment on the sharti system, and had to squeeze out a double profit to remunerate both themselves and their employer, while the permanency of their appointment was more dubious than his, inasmuch as they not only might be turned out at his pleasure, but were also removable along with him when he was superseded from the Darbar. These sub-renters therefore had to work double tides to make up a purse, and endless were the devices resorted to. Some contented themselves with squeezing more than was due from every trader who passed through their hands, while others, with more enlightened views in the science of extortion, attracted merchants to their own particular line of kaṭṭes, by entering into private arrangements with them to let their goods pass through at comparatively light rates.

The sáyar collections in Nagar were classed under three heads. 1st. *Hálat*, or the excise duties levied on areca-nut, cardamoms and pepper, on removal from the place of their production. 2nd. *Charádáya*, or transit and town dues. 3rd. *Káraka*, which may be described as a composition for sáyar, being a tax paid by certain classes for relief from payment of sáyar duties. For carrying out the complicated sáyar system in this Division, there were sixty kaṭṭes established, of which thirty-one were frontier, and twenty-nine internal. The establishments of such of these as were situated in the two Sarsáyar Ilákhas were paid by the Government, the remainder by the Wot izardar. Of the former there were fifty-two and of the latter eight.

The sáyar of the Ashtagram Faujdári was put up to auction, and rented, sometimes by single taluqs, sometimes in a number combined, and sometimes the whole in one lump, to the highest bidder. The renter had to find security, and both renter and security had to execute muchchalikas. In general the security was the real renter, but sometimes both were merely agents of a third party who did not choose to come forward. There were occasional but rare instances of particular taluqs being kept under amáni. When the muchchalika and security bond were executed, orders were issued to place the renter in charge of the various items of revenue which he had farmed. This being done, he proceeded to sublet them in any manner he pleased, or to retain the management in his own hands if he preferred it. The government does not appear to have reserved to itself any right to interfere in the arrangements of the renter, and as each of his sub-renters on appoint-

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ment became an acknowledged public servant and adopted a seal of office, it may easily be supposed in how many ways they had it in their power to interfere not only in the trade of the country but in the private affairs of every individual.

The same confusion existed with regard to the items which constituted sáyar as in the Nagar Division. It was nominally divided into the heads of *márg* and *pattadi*. Under the head of *márg*, properly speaking, came all the items which we should call land customs, with multifarious additions, varying in each taluq and in particular parts of the same taluq. Among them may be mentioned the *shádi kutike* rents, or taxes on marriage, concubinage, births, deaths, and other domestic occurrences. Of more than one hundred items which came under the head of *pattadi*, there was not a single one which ought rightly to have been included in the sáyar. They were all of them money assessments, mostly personal in their nature, and levied direct from the ryots. They consisted of taxes on individuals on account of their castes or professions, and of fees levied from ryots for permission to make earth salt, to fish in tanks and streams, to collect emery stones, to gather honey, cardamoms and other jungle products, or in some places to sell the produce of their own lands. The poor wretches even who eked out a scanty livelihood by collecting white ants for food, did not escape without a tax for so doing. One item of the pattadi revenue deserves particular mention. It was an extra tax collected from the ryots as a percentage upon, not out of, the land revenue they paid to Government. It varied in particular taluqs from 1 to 5 fanams in the pagoda, or from 10 to 50 per cent. exacted from the ryot in excess of his original rent.

The seat of government being in the Ashtagram Division, the prahara pattis or Sarkar tariff tables were nominally more regarded than in the distant province of Nagar. There was no rule, however, compelling the sáyar renters to abide by the rates set down ; and even if there had been, there would still have been more confusion than enough, for the duty on some articles was to be calculated by weight, on others by measurement, on others by number, and on others again by cart, bullock, ass, or cooly load. These modes of computation too were not uniform throughout the Division, but differed in every taluq, and even in every kaṭṭe. They were, in fact, left very much to the caprice of the chaukidar of the kaṭṭe, and were another fertile source of extortion and delay. Other anomalies consisted in the levying of different rates from different descriptions of merchants ; the lower rates probably having grown into mámúl from having been originally the result of a corrupt arrangement between the renter and the

merchant. For instance, salt passed free into the town of Mysore if brought by one particular class of people; and in the Belur taluq, two bullock loads of supari were passed as one load if carried by Kormars, Lambánis or Waddars. The collusive system by which traffic was attracted to one particular line to the prejudice of others was in force in the Ashtagram as much as in the Nagar Division.

If the Nagar Division suffered in some respects from its distance from the Darbar, Ashtagram was in its turn victimized from its propinquity, for the returns show that there were no fewer than 331 kaṭṭes in this Division alone. It is said to have been no uncommon thing to reward a favourite by the imposition of a new tax, or the institution of a new kaṭṭe, and the name of a mendicant called Mohant is remembered from a privilege which was granted to him for a time of exacting a fee from every person passing into Mysore from a particular direction. The mendicant was soon deprived of this right, but the toll was continued under the title of the Mohant rusúm, and put up to auction along with the other items of sáyar. In the immediate neighbourhood of Mysore these kaṭṭes were so close together that there were few roads on which the goods of a merchant were not stopped, and (unless he came to terms) unloaded and ransacked, at least four times in the course of an ordinary day's journey. Even more than this: a particular bridge is mentioned, on which at one time there were three of these kaṭṭes—one at each end and one over the centre arch!

In the Bangalore Division, probably owing to its containing the large British Cantonment, abuses were much less rife than in Nagar and Ashtagram, and the rules for levying the sáyar duties which were in force in the time of Purnaiya, were continued without change or modification up to 1846-7, under izardars, to whom the sáyar was annually rented on competition.

Pánch báb.[1]—The *tobacco* monopoly existed in 38 taluqs only. In Bangalore this rent existed only in the town and its dependencies, called volagadis. The renter purchased the article from the cultivators or imported it from Salem, at from 4 to 10 fanams per maund of 49 seers, and disposed of the same to the bazaar men at from 12 to 23 fanams per maund of 40 seers. The bazaar people retailed the article at a small profit of one fanam per maund.

The monopoly of *betel-leaf* was not general, being found only in 15 districts. In Bangalore the custom was to employ a renter; he bought at 20 bundles for one fanam, and sold to the public servants at 16 bundles the fanam, to the bazaar men at 8, and at 10 to the public

[1] In the old reports this name, which means the Five Items, appears under the ludicrous form of *Punch Bob.*

servants in the Cantonment. The bazaar men sold in retail at $7\frac{1}{4}$ bundles the fanam, the remaining $\frac{3}{4}$ of one bundle of the 8 received from the renter being the profit of the bazaar men.

The monopoly of *ganja* existed only in a very few taluqs. It was confined in Bangalore to the town. The renter purchased his supplies at the rate of from 12 to $24\frac{1}{2}$ fanams the maund, and sold it to the bazaar people at from 3 to 7 pagodas. The affairs of this rent were carried on by the people of the tobacco depôts.

The rent of *arrack* was taken by an individual in each taluq. The renter either sublet portions of his rent to others or managed it in amáni. If he sublet it, the under farmers engaged to pay their rent either for every shop or for each village. If kept in amáni, the renter established manufactories, where the arrack was prepared for distribution, employed his own servants and caused the arrack to be sold by retail at the usual rates. There was no uniform rule as to the extent of the farms, as one man might be the renter of one taluq or twenty; while there were some taluqs rented to several. There were two classes of persons, the one called Bedar and the other Kalala, who had been accustomed from ancient times to manage the arrack trade and to rent the sales from the Sarkar; but in latter times the business seems to have been open to all classes. There was a tax on adultery by women of the Bedar and Kalala castes, and also on their marriages, which was farmed with the arrack.

The rent of *toddy*, which was not general in all the taluqs, consisted chiefly of what was obtained from the lands occupied by the wild date-tree, and was levied annually. These were sometimes called séndi trees. In some cases every séndi shop was taxed, but the tax was most generally levied on the beast of burden which conveyed the séndi to the shops; or on the leathern bags which contained the liquor. The renter realized the tax monthly. In some taluqs there were no trees from which toddy could be extracted, but shops were still maintained by a caste called Idigar, who acted under a renter and supplied themselves from other taluqs. In several taluqs the person who rented this article employed his own people both to extract toddy from the trees and to sell it in retail, paying them hire for their labour. There were certain taxes payable by these people on their marriages, on the fornication and adultery of their women, and on other occurrences, all of which made part of the rent. When the toddy or séndi was not rented, the taxes were collected in amáni, according to the usual rates, by the shekdar, or by such an establishment as might be kept up for management of the Bájebáb taxes. The accounts of this revenue were not kept distinct, but mixed up with that of arrack.

Civil Justice.—Of the system of judicature, civil and criminal, as it existed during the Rája's government, a report of 1838, by the late Sir Mark Cubbon, contains a full and lucid account, from which the succeeding paragraphs are compiled.

When the Rája assumed the reins of government, considerable alterations were, with the concurrence of the Resident, made in the judicial department. A new Sadar Court was established at Mysore, with two Bakshis at its head, and under it were three inferior courts, each under two presidents called Hákims. Amongst these courts the business was divided as follows:—The Sadar Court heard and decided all civil causes above 500 rupees; it received reports of the decisions of the three inferior branches of the court, confirmed or revised them, and inspected and sealed their decrees, without which no decision was considered valid. The second court had jurisdiction in civil causes, from 100 to 500 rupees. The third court had jurisdiction in suits not exceeding 100 rupees. The fourth court undertook the magisterial department, which will be more particularly adverted to hereafter.

Although these four courts sat in one place, and were all under the control of the chief judges, yet each had its separate establishment of public servants. The forms of their proceedings were adopted from the judicial regulations in force in the Madras Presidency. They examined witnesses upon oath. Two statements were taken from the plaintiff—the *plaint* and the *answer*,—and two counter-statements—the *reply* and the *rejoinder*—from the defendant; and institution fees were levied upon suits. Two-thirds of the amount of these fees were, when realized, credited to the Sarkar, and the remaining third was paid to the authorized vakils employed in the cause. There was no express provision for an appeal to the Rája from the decision of the Sadar Court; nevertheless, when parties complained to the Rája, he used often to call on the judges for explanation.

The two first Bakshis who sat in the Sadar Court, thus newly constituted, were Bakar Sáhib, and Gulam Mohi-ud-din Mekri. For the first year and a half after their appointment it would seem that justice was equally and duly administered, and though the judges were subject to the solicitations of the Rája's courtiers, yet no real hindrance was offered to the course of justice so long as they steadily resisted all attempts made to influence their decisions. After this interval, the orders of the court issued upon its ordinary business to the various cutcherries began to be neglected by the public officers of the State; the minions of the Darbar increased their interference, and the chief judge, Bakar Sáhib, a man reputed for integrity and independence of character, finding that they were encouraged rather than checked,

refused to exercise his judicial functions any longer, and retired to his own house. After a lapse of four or five months, the Resident, by earnest representations to His Highness the Rája, and persuasions to Bakar Sáhib, prevailed on the latter to resume his duties. He accordingly acted as chief judge for a year longer, during which period the business of the court, so long as His Highness happened to be pleased with the Resident, went on uninterruptedly; but whenever this harmony was disturbed, every sort of secret and indirect influence was exercised to render the court contemptible, and its orders nugatory. At last Bakar Sáhib, unable to support the dignity of the court, and wearied by the constant repetition of these insults, quitted office in disgust, and never returned.

The second judge, Gulam Mohi-ud-din Mekri, then took the seals, and being supported by Sidraj Aras (a relative of the Rája, who was entrusted with much of the authority of the government, and enjoyed likewise the confidence of the Resident) he was enabled in some degree to maintain the character, and to enforce the authority of the court. At the end of seven years, nine charges of corruption and partiality were presented against this judge, but after two months' investigation before the Resident nothing was proved against him. He then besought the Rája to punish his accusers; but failing in this, he resigned his office.

The Khazi of the court, Sáyad Ali, succeeded, but though acting as Bakshi he did not keep the seals, the decrees being submitted for confirmation to Bále Aras, a maternal uncle of the Rája. One Srinivas Rao was then associated with the Khazi for about ten months, when the latter died, and Srinivas Rao conducted the affairs of the court alone. He too was dismissed by the intrigues of the Rája's courtiers after some months, and Chota Rája Khan was appointed in his place. During the time of the latter judge, who remained in office about three years, the court was in very bad repute. The suitors sought for and obtained their ends by indirect means. The Rája often sent for this judge, abused and called him names in open Darbar, dismissed him from his presence, and summoned a mutsaddi of the court to give him what information he wanted. It is currently believed that every person about the Darbar at that time, however low, used to intermeddle in the suits, and attempt to influence the decisions of the Adalat. At length one Krishna having obtained an unjust decree for a large sum of money, through the influence, as it was supposed, of the sheristadar of the Resident's cutcherry, the Rája, at the suggestion of Dasappaji, a relative of his own, assembled a pancháyat, inquired into the charge, and dismissed the judge.

After which, at the instance of the Rája, Gulam Mohi-ud-din Mekri, who had formerly resigned, again consented to act as Bakshi of the Adalat, and remained at the head of the court until the assumption of the country, when the functions of the Adalat were suspended. And on the establishment of the newly-constituted Adalat, or Commissioner's Court, in 1834, he was appointed one of the judges.

Thus, from its first institution by Purnaiya, until the appointment of the Commission, the semblance of an Adalat Court was maintained; but it was no uncommon thing, after its decrees were passed, for the Rája to issue a *nirúp* dispensing with their observance. It has likewise happened that, in the same suit, as many as four or five contradictory decrees, in addition to the original decree of the court, were successively passed by the Rája himself, just as the influence of the one party or the other predominated at the Darbar; and other circumstances might be adduced in proof of the fact that, at the time of the assumption of the country, nothing remained which was fit to be called the administration of justice.

Besides these irregularities connected with the Court of Adalat, suits to the highest amount were sometimes decided in the Sar Amin's choultry, and even by Rája Khan and Dasappaji when Bakshis of the Barr or Infantry. Questions of property were also decided by the Rája in person, without any record of the investigation, or any written decree.

Criminal Justice.—Under the ancient Hindu rulers of Mysore, the following classification of crimes and forms of procedure are said to have prevailed:—theft; robbery; highway robbery; murder.

Cattlestealers, and robbers of cloths, household furniture and grain, &c., were tried by the shekdars, shánbhógs and gauḍas of villages, who were empowered to inflict, on conviction, corporal punishment and imprisonment in the stocks. There was no limitation either to the extent or duration of these punishments, and persons confined on suspicion were seldom released, whether shown to be implicated or not, until the stolen property was recovered. A report of the circumstance was, however, made by the village authorities to the Amil.

Primary investigations of highway and gang robberies, and murders, were also made by the village officers, after which the prisoners and witnesses were sent to the Amil, who, assisted by the killedar, examined them, and reported the result of the inquiry, with their opinion, to the Huzur, by whose orders the prisoners were variously punished, by death, imprisonment for life in hill forts, and by mutilation. But records of these trials were never kept, nor does it clearly appear that

pancháyats were ever employed in criminal cases previous to the government of Purnaiya.

Under the Muhammadan government, no particular alterations were made in the customs which had previously prevailed in the districts. There was a Sadar Court at the Huzur; and Muhammadan law was administered to those of that faith according to the Koran.

The forms of criminal procedure and the punishment of crimes which obtained under the administration of Purnaiya have been described in the last section, when an attempt was made to reduce into practice some of the mild principles of jurisprudence advocated by Beccaria. The experiment, however, failed.

Under the Rája, the fourth court at Mysore undertook the magisterial department, each hákim alternately presiding in it and receiving petitions; that is to say, each hákim was employed for fifteen days successively in receiving complaints and preparing them for hearing, and fifteen days in presiding at trials. This Court inquired into all assaults, robberies and minor offences, and having presented its finding to the Bakshi of the Sadar Court, sentence was passed by the latter.

The penalty awarded for theft of all descriptions, and serious assaults, was for the most part corporal punishment, and but rarely fines; the former being always inflicted on low-caste prisoners, the latter on those of the higher caste. The instrument used for corporal punishment was the *korda*, a most formidable whip, forty strokes of which, when severely administered, were sufficient to exhaust the frame of the stoutest criminal; nevertheless, instances were very common of prisoners suspected of theft being flogged until they fell, being remanded to prison, and again subjected to the same discipline until they confessed the crime, or named a spot where the property was hidden; the former being necessarily the only resource of such as were really innocent. To carry on these severities there were two regular Jalebdars or floggers borne on the strength of the establishment of the Sadar Court, at a monthly pay of six rupees each. Afterwards, when one was reduced, it being found that one individual was inadequate to fulfil the duty required of him, it frequently happened that the floggers attached to the Anche, Shagird pesha and other cutcherries (all of which were similarly provided), were called in to assist in the magistrate's department. It has been confidently stated by one of the most respectable men employed in the judicial department under the Rája's administration, that no day passed from the time His Highness ascended the throne in 1812 until the appointment of the Commission, on which, when magisterial inquiries into theft and serious assaults took place, the sound of the korda was not heard in the Court

of Adalat.[1] In heinous cases the Bakshis were accustomed to report to His Highness the Rája, and receive his orders on the subject. In awarding the amount of punishment, the Mufti was consulted by the Court, and he gave his futwah. But this mode of proceeding did not, as will be afterwards explained, extend to the greater part of offences committed in the taluqs; and even with regard to those committed in the town of Mysore, it must be considered rather as the rule than the practice.

The preceding statements refer to the mode of procedure. With regard to the punishment of criminals, there was, under all the rulers of Mysore, from Haidar Ali to the Rája, an utter absence of system, so that it was impossible to say what kind of punishment would be inflicted on any particular class of offenders.

For felony—death by hanging, throwing over precipices, and treading under foot by elephants, confinement for life in hill forts, amputation of hands, feet, noses and ears, flogging, imprisonment in the common jails, confiscation of property, and fines, were indiscriminately resorted to. In one respect, however, the preliminary proceedings were invariably the same; that is, persons suspected of murder or robbery were beaten daily until they confessed the offence, or pointed out where the stolen goods were deposited. Indeed, the recovery of the stolen property was considered (and it is believed the current of native opinion still runs in the same channel) of more importance than the punishment of the offender, and when this was effected the culprit was as commonly released as punished. The usual punishments for petty thieves, revenue defaulters, and fraudulent debtors, were—flogging, imprisonment, fines, exposure on the highway with a stone on the head, thumb-screws, and pincers on the ears; but these inflictions were equally uncertain and variable with the preceding. Petty assaults and abusive language were commonly punished with small fines of from 3 to 12 gold fanams.

To refer more especially to the time of Purnaiya, Major Wilks observes that sentence of death was never pronounced excepting in cases of murder or plunder on the frontier; that theft and robbery were punished with imprisonment and hard labour; that fines were discouraged, as a dangerous instrument in the hands of subordinate authorities; and that corporal punishment was prohibited. This

[1] It was a favourite instrument with Haidar (*see* p. 396). It was a common trick of his chief chobdar (says Wilks), when his master appeared displeased at some supposed relaxation,—or as he chose to interpret, was in ill-temper,—to bring him into good humour by the sound of the corla at the gate, and the cries of an innocent sufferer, seized casually in the street for the purpose.

statement is true only of a particular period. Previous to that time, punishment by mutilation of hands, feet, noses and ears was occasionally inflicted by order of Purnaiya, and in the latter years of his government it is well known that he had recourse to all the severities of former times. At the period of his administration last spoken of, corporal punishment was not only permitted, but enjoined; suspected thieves were flogged by the village officers till they confessed, and if obstinate (or innocent) they were sent to the taluq cutcherry, where they were flogged again. Even the power of inflicting capital punishment was not, as at the time described by Major Wilks, confined to the Divan assisted by the Resident, but was exercised sometimes by the Faujdars, by whom also the crime of murder, when committed by persons of high caste, was either overlooked or not infrequently commuted for short imprisonment or a fine.

Murder, gang and torch robbery attended with violence, when committed by persons of low caste, were usually punished with death. Gang and highway robbery unattended with violence, were punished sometimes with mutilation, but more commonly with imprisonment in hill forts, or hard labour in chains. For thefts or other minor offences, from 10 to 100 lashes, at the discretion of the Amil, were permitted to be inflicted; likewise thumb-screwing, fining, and imprisonment. Revenue defaulters were subjected to these last, and various other tortures, such as being made to stand on hot earth from which the fire had just been removed.

During the Rája's administration, the punishment of offences was much the same as in Purnaiya's time, perhaps rather increasing in irregularity, until the state of disorder into which the country was at length thrown led to its assumption.

Persons accused of serious offences, especially at the capital, were, as has been already said, tried, according to rule, at the Huzur Adalat; but in practice, the Barr and other cutcherries were likewise not infrequently used as criminal courts. By all these tribunals, and also by the Sar Amin, mutilation of the hands and feet, noses and ears, was inflicted, even for ordinary theft; while corporal punishment, thumbscrews, and ear-pincers were commonly resorted to for minor offences; women convicted of incontinency were sold as slaves, and, in an order now before me (writes Sir Mark), a woman is sentenced to lose her nose for that offence. Stripes were inflicted by the local officers without limitation as to number, and were habitually resorted to in order to recover balances of revenue.

The condition and treatment of females was most deplorable during all former administrations, especially under Hindu rulers; and if to

live in constant dread of degradation and exposure to the greatest indignities, at the accusation of the meanest and most disreputable informers, be considered a state of slavery—actual sale in the market, which frequently followed, was but the climax of a long course of previous suffering and servitude. It will hardly be credited that in the large towns there were regular farmers of an item of Government revenue called Samayachar, part of the profits of which arose either from the sale of females accused of incontinency, or fines imposed on them for the same reason. Thus the Government was placed in the position of deriving direct support from the crimes of its subjects, or, what is still worse, of sharing with common informers the fruits of their nefarious extortion.

The rules of this system varied according to the caste of the accused. Among Brahmans and Komtis females were not sold, but expelled from their caste, and branded on the arm as prostitutes; they then paid to the ijárdar an annual sum as long as they lived, and when they died all their property became his. Females of other Hindu castes were sold without any compunction by the ijárdar, unless some relative stepped forward to satisfy his demand. The wives and families of thieves were also commonly taken up and imprisoned with their husbands, notwithstanding that there was no pretence for including them in the charge. These sales were not, as might be supposed, conducted by stealth, nor confined to places remote from general observation, for in the large town of Bangalore itself, under the very eyes of the European inhabitants, a large building was appropriated to the accommodation and sale of these unfortunate women; and so late as the month of July 1833, a distinct proclamation of the Commissioners was necessary to enforce the abolition of this detestable traffic.

The Amils were sometimes confined in irons for corruption or neglect of duty; or summoned to the Huzur and exposed before the palace with their faces covered with mud, and with pincers on their ears; they were also occasionally flogged, to the extent of one hundred lashes, or until they gave security for the balances against them; yet such men were not by any means looked upon as disgraced, but were frequently reappointed to office, and some of the taluq servants now in employ are said to have formerly suffered such inflictions. The natural consequence of this was the extinction of all self-respect and honourable feeling amongst the public servants.

Although no sentence of death could be carried into execution at the town of Mysore without the sanction of the Rája, yet, at a distance from the seat of government, reputed offenders were sometimes executed even without the form of a trial. So late as the year 1825, a native

officer of infantry was sent out for the apprehension of some Kormars (a class of people notorious for their predatory habits) accused of robbing a treasure party, and putting to death two men who had been employed to obtain intelligence of their movements. The orders he received were to hang the guilty, and bring in the women and children. Sixty-five men were accordingly hanged on the spot, and 200 prisoners brought to Mysore. The same officer was again employed in 1827, and brought in 100 prisoners, of whom three were hanged. Of the whole 300 prisoners captured on the two occasions, about 200 were sold in the public bazaar of Mysore as slaves, and the rest, without any form of trial, were kept in jail. The native officer was rewarded for his activity with a palankeen and an increase of salary.

Towards the end of the Rája's administration, almost all the powers of government had passed into the hands of his principal officers or his favourites, by whom they were often exercised for purposes of extortion or revenge. It was well known that notorious criminals were constantly liberated for a bribe, while the innocent were imprisoned; and on the appointment of the Commission, the jails were found to be crowded with supposed offenders of every description, many of whom, it was found on inquiry, had been confined on mere suspicion, or for no assigned reason; while others had been imprisoned for ten years and upwards without ever having been brought to trial.[1]

In short, both property and personal liberty, and sometimes life itself, were dependent on the mere will and caprice of a class of public officers who were not only quite incapable of executing their duties, and indifferent to the fate of those under their control, but openly and avowedly were subject to the orders of the debauched parasites and prostitutes at court, who notoriously superintended and profited by the sale of every situation under the government the emoluments of which were worth their attention. Nay, more, these public officers were themselves not infrequently in league with criminals; and such was the general and deep-rooted corruption, that men who could afford to pay might commit all sorts of crimes with impunity. The capital punishment of an opulent offender was a thing almost unheard of; and it was thought to be an act of unparalleled disinterestedness on the part of the Rája, when he was reported, in 1825 or 1826, to have refused the offer of one lakh of rupees for the pardon of the supposed leader of a gang which had committed some daring outrages. Combinations existed between public officers and gang robbers for purposes of plunder, and there is too much reason to believe that, even after the

[1] The Rája requested to be allowed to liberate the prisoners in jail before delivering over the government in 1831.

assumption of the country, depredations did not wholly cease to be committed under the protection of the public servants.

With respect to the jails, little regard was had to accommodation or management, and there was no classification of prisoners; whether convicted, accused, or only suspected, they were all confined in the same place; and a special order from the Commissioners was necessary to abolish a practice, which had generally obtained, of working them on the high roads *before trial*.

It has appeared necessary to enter into this long recital of the former laws and usages of Mysore, because an impression generally prevails that they were distinguished for extraordinary lenity; whereas, with the exception of a short period during Purnaiya's administration, nothing could exceed the corruption and capricious severity which pervaded the department of justice, as well as all other branches of the administration; and thus it happened that the people, having lost all feeling of self-respect, and accustomed to consider punishment more as the sign of the anger and impatience of their rulers than a just and certain consequence of crime, were left in a state of demoralization, and callous indifference to shame.

Police.—Under the Hindu rulers of Mysore, the duties of the police were conducted by village servants, under the following denominations, and these denominations were continued with little variation under the government of Haidar Ali, Tipu Sultan, and Purnaiya. These servants were paid either in inám lands, shares of grain from the ryots, or direct from the Sarkar. *Talvars*, *totis*, *nirgantis*, and *kávalgars*, the usual village servants so called: *kattabidi* peons, watchmen on public pay: *Hale Paiki*, ancient or common peons: *umblidars*, holders of inám lands called umbli, it was their duty to provide a constant succession of watchmen, and they were held responsible to protect all property within their limits: *amargars*, holders of ináms called amar, which they held for the performance of police duties: *hul-gával*, selected from the thirteen castes, they were entrusted with the charge of public treasure: *ankamala*, watchmen of the Bedar caste: *kalla Kormar*, thieves by profession, and found useful in detecting thieves. Also the patels and shánbhógs. In the time of the Pálegars, these watchmen were held responsible for all robberies committed, whether in fields or houses; they traced robbers by the footsteps, and if unsuccessful, themselves became responsible for all lost public property of moderate amount, but not for private property.

The first blow struck at the power of the patels was in the reign of Kanthirava Narasa Rája in 1654. That prince, attributing the opposition he met with from his subjects to the turbulence of the

patels, reduced their ináms, and confiscated to his own use a great part of their property. Their allowances were partially restored by Chikka Deva Rája, who ascended the musnud in 1672, and he at the same time regulated the rusums of the other Barabalutis. His son and successor, Kanthirava Rája, however, sequestered the shares of the patels, leaving the ináms of other village servants as they were.

Under Haidar the effective state of the police can be much more readily credited, as, indeed, it can be more easily accounted for; there was then no separation of interests, and no clashing of jurisdictions. His administration was as extensive as it was vigorous, and besides the terror of his name, and the real sagacity of his character, it must be remembered that his immense levies effectually drained the country of all turbulent spirits, or, what is much the same, gave them employment congenial to their tastes and a sure means of livelihood. Haidar took no steps to restore to the patels their sequestered allowances; but, by continuing to the other Barabalutis their emoluments and privileges, he ensured their services. The village walls and boundary hedges were kept in repair; and tranquillity was preserved by the presence of his troops, who were everywhere distributed, and by the severity of his punishment whenever it was disturbed.

Under Tipu Sultan, the police, though impaired by the reduction of many of the patels, umblidars and amargars, and by the assessment levied upon their inám lands, was still kept from utter ruin by the presence of his troops under the Asofs, and the dread of his sanguinary disposition. The Sultan's reductions, however, extended only partially to Nagar, and not at all to Manjarabad, where his authority was never sufficiently established to render such measures practicable; and at one period of his reign he appears to have had some intention of restoring to the patels the ináms of which they had been deprived. They were accordingly summoned to his presence, inquiries were instituted for that purpose, and sannads were actually issued to the taluq cutcherries for delivery to them, but for some reasons which are not known, probably the confusion of the affairs of his kingdom, nothing further was done to replace them in their old position.

Under the administration of Purnaiya, the Kandachars selected from the remains of Tipu's army were employed in the police, and as the country was well guarded from disturbance, by the vigilance of the ruler and the presence of British garrisons, little opportunity was afforded for the perpetration of those crimes which in India are almost an invariable consequence of public disorder. But the ruin of the patels was completed by Purnaiya in the year 1800. Until the period of his government, the patels' ináms, though sequestered, were still

entered as such in the accounts of the Sivayi jama, or extra revenue; thus kept separate, it was easy to restore them to their original possessors, who probably still had hopes from the clemency of some future sovereign. Purnaiya, however, at once destroyed such expectations, by including the whole of these allowances under the general revenue of the country. But Purnaiya did more. He reduced many of this class whom Tipu had spared; and as this final spoliation of the patels was immediately followed by the establishment of sixty-three charitable feeding-houses, the two measures were inseparably connected in the public opinion.

The same state of things continued for some years under the Rája. In the capital the police authority was aided by the Barr or infantry, a large body of which was constantly stationed in the town for that purpose. The police, however, began to decline with the other branches of the administration, and the general prosperity of the country.

Under the Mysore Commission.

Non-Regulation System, 1831–1855.

On the British assumption, which took place on the 19th of October 1831, the maintenance, as far as possible, of existing native institutions was expressly enjoined. The task which lay before the Commission, therefore, was not to inaugurate a new system of government, but to reform flagrant abuses in the old, to liberate trade and commerce, to secure the people, especially the agricultural classes, in their just rights against the gross tyranny and shameful extortion of a host of unscrupulous officials in every department, to purify and regulate the administration of justice, and to develope the resources of the country. But the treasury was saddled with heavy debts; the subsidy and the pay of troops and establishments were in arrears; hence fiscal regulations and the emancipation of the land revenue were the most urgent measures at first required.

The revenue system followed, as directed by Lord William Bentinck, was the ryotwari, which appeared to be the only one adapted to the wants and traditions of the people of Mysore. It was brought back as far as possible to the state in which it was left by Purnaiya, but liberalized in all its details and viligantly superintended in its working, with higher views, however, than the mere swelling of a balance-sheet, as was too much the case with that celebrated administrator. The money rents were lowered in all cases where the authorities were satisfied that they were fixed at too high a rate; and the payments were

made as easy as possible to the ryots, by abandoning the system of exacting the kist before the crops were gathered, and receiving it instead in five instalments, payable at periods fixed in the first instance by the ryots themselves with reference to the times of harvest. This had the effect of saving them from the grasp of the village usurers, and they were also freed from the harassing periodical inspection of their crops, and other vexatious interferences with their cultivation. These changes were highly appreciated by the ryots themselves, but were distasteful in the extreme to the money-lenders and lower class of public servants.

In cases where the batayi system, or that of an equal division of the crop between the Government and the husbandman, was found to be in force, every effort consistent with the prescriptive right of the cultivator was made to convert it into a money payment, and where it still prevailed it was purified of its most vexatious characteristics. All the preliminary authorized pilferings of the village servants were put an end to; the grain was divided in the most public manner; the choice of shares was left with the ryot, and the whole of the straw—in a cattle-breeding country a very valuable portion of the crop—became his own property. The result of these arrangements was, that the revenue was collected without the least difficulty; that applications for takkávi (money advances from Government) became less numerous every day; and outstanding balances were all but unknown.

The following are detailed accounts of the revenue and judicial systems in force during this period, and of the reformation of the sáyar; compiled from a General Memorandum on Mysore, written in 1854.

Land Revenue.—It does not appear that a revenue survey of the lands in Mysore was ever made prior to the capture of Seringapatam, but one of the first steps adopted after that event by the Divan Purnaiya was a general Paimáyish or measurement of fields. The execution of this work, however, was incomplete and irregular, and the records of the measurement were not forthcoming in many of the taluqs. Under the new administration no attempt at a general survey had as yet been made. Assuming, however, Colonel Mackenzie's estimate of a superficial area of 27,000 square miles to be correct, the number of khandagas or khandis would be 1,306,800: of these, 937,254 were calculated to be covered by mountains, rivers, nullahs, tanks, roads, and wastes, leaving 369,546 of cultivable land, of which about 284,276 khandis were under the plough.[1]

[1] This estimate corresponds with a total area of 17,280,000 acres; 12,186,567 being unculturable, and 5,093,433 culturable, with 3,965,896 cultivated. The estimated

The lands in every village were classed as *kushki* or dry, *tari* or wet, and *bágáyat* or garden. They were divided into khandagas (or khandis), kolagas (or kudus), ballas, seers and poilis; these being the names for the measures or weights of seed required to sow a given space. But, as these measures varied in each different locality, they were set aside by Purnaiya, and a uniform measure, called the Krishnaraj khandi, established in their room. This khandi, which was fixed at 160 seers, was the standard followed by the European Superintendents in their revenue settlements.

Each village had its *Beriz*, its *Chedsal Jamábandi*, and the *Sthal shist* or *Rivaz*. The beriz was the amount of revenue fixed in ancient times to be drawn from the village. The chedsal jamábandi was the maximum amount derivable at some former period from the village, and the rivaz was the ancient rate of assessment on each particular field. The number and extent of each field and each particular of its assessment were registered in the accounts of the shánbhógs, but these books had been greatly tampered with at various periods, and had to be looked upon with great suspicion where they did not stand the test of actual measurement. Every field had its own particular name, and its boundaries were carefully marked.

Each village in Mysore, as in other parts of India, had its own agricultural corporation. This establishment, which was called Bárábalúti in Mahratti, and Ayangadi in the language of the country, was composed as already described (p. 574).

The patel or gauda was the head man of the village, and his office was hereditary. He had police authority to a certain limited extent: he settled caste disputes among the ryots, sometimes with, but generally without, the aid of a pancháyat, and he was the usual channel of communication between the Government and the village community. In some villages there were government lands assigned to the patels for their support, and in others there were none. So also in particular districts there were patels of great consideration and influence, while in others they could hardly be said to rise above the mass of cultivators. The former was generally observable in places remote from the seat of government or difficult of access from other causes.

The shánbhóg was the registrar or accountant, and in some cases of more villages than one. With hardly an exception, they were of the Brahman caste, and the office was hereditary. In some places they were in the possession of lands rent free, in others they enjoyed them on a jódi or light assessment, and in some few places they had a fixed money allowance. In all

figures in 1875 were, a total area of 27,077½ square miles or 17,329,600 acres, of which it appears that 8,923,579 were unculturable and 8,406,021 culturable: 5,585,015 of the latter being given out for cultivation, and 4,231,826 actually cultivated.

instances there were certain fixed fees payable to them in money or in kind by the ryots.

The totis were the responsible watchmen of the village and its crops. They were likewise required to act as guides to government officers and travellers of any importance, and in the absence of the talári had to perform the duties of that official in addition to their own. They were remunerated by lands held free of rent, or on a light assessment. In all disputes about boundaries of villages or fields, the evidence of the toti was looked to as most essential.

The talári was the scout of the village. He traced robbers and thieves, watched the movements of suspicious strangers, and was, in fact, the police peon to the magistrate patel. He was remunerated by rent-free or jódi lands. In certain villages there were no taláris, and in these cases his duties were performed by the toti.

The nirganti regulated the supply of irrigating water to the wet lands of the village, whether belonging to the ryots or to the Sarkar. He had to economize the supply of water in every possible way, and in the season of rains might be said to hold the safety-valves of the tanks and other reservoirs in his hands. Many a day's supply of water was sometimes lost by the timidity or apathy of an inefficient nirganti, and on the other hand many a valuable dam was carried away by the rashness or ignorance of a presumptuous one.

The remainder of the Bárábalúti, with a few rare exceptions, were dependent for their support on the fees paid to them by the ryots for the exercise of their crafts, and on what they might earn from travellers.

There were many villages in which the full complement of the Bárábalúti was not to be found, the duties and functions of one member being doubled up with those of another. In some others, again, the number of the complement was much extended, and we find included among them in the accounts—the schoolmaster who taught the children, most likely in the exact same manner and on the selfsame spot that his ancestor taught their ancestors twenty centuries ago; the calendar Brahman who calculated their innumerable festivals and anniversaries, and the pujári who propitiated and worshipped the village idol. It was very seldom that these individuals derived any support from Government, but the ryots of course were glad to assist them in the same way as they did the handicraftsmen.

Should any of these village servants who enjoyed government lands, or were in the receipt of a money allowance, misconduct themselves and be dismissed from their appointments, they were invariably succeeded, unless the crime were flagrant, by some member of their own family. In cases where there were two or more claimants for the same office, as, for instance, in an undivided Hindu family, they were allowed to select from among themselves the individual whom they

considered fittest for the post, and it was his name alone that appeared in the Sarkar accounts. In some instances they preferred to exercise the duties in rotation, and where this was found to work harmoniously the authorities never interfered. The civil courts could take no cognizance of disputes for the right of succession to these offices, or for shares in the lands and immunities attached to them. All such were decided summarily by the Amildar, Superintendent, and Commissioner in their Revenue capacities. The alienation, mortgage, or transfer in any way of these lands was strictly prohibited.

In 1850–1, it was calculated that there were 50,709 persons borne on the accounts as Bárábalúti, who among them enjoyed land to the annual value of K. pagodas 40,178 and received a money allowance of 10,531; being together K. pagodas 50,709 (Rs. 1,47,517).

The following is a description of the duties of the several Revenue Officers, and of the principles observed in the Revenue Settlements :—

The mungári or first rains commence about the middle of April, and continue at intervals till the middle or end of June, by which time the fields are ready to be sown. At this period the tanks should contain two months, or even more, of the supply of water requisite for the cultivation of the rice lands. Some time before the beginning of the official year, which was the 1st of July, the shánbhóg of the village assembled the ryots, and inquired into the circumstances and plans of each individual. After which he concluded the arrangement with them for the kandáyam and batayi lands they were to cultivate, and for the revenue payable by each during the ensuing year.

It will thus be seen that the shánbhóg was the primary agent in every arrangement between the ryot and the Sarkar. It was through him that the revenue administration of his village was conducted, and it was to him, and to his books, that the ryot and the Government must alike look for the record of their respective rights. He kept a register of all the cultivators in the village, and took an account of the lands of such persons as had died, deserted, or become insolvent, and used his best endeavours to induce others to cultivate in their room. He had also to prepare a general annual account of all the kandáyam lands, setting forth both the cultivated and uncultivated portions, and the reasons why the latter had not been tilled.

In the Chitaldroog and Ashtagram Divisions, the collections commenced in November; in Bangalore, in December; and in Nagar, in January. Between these times and June, when the official year closed, the ryot was required to pay to the shánbhóg the five instalments into which his kist had been divided. As each of these instalments was

collected from the village, the shánbhóg proceeded with it to the taluq cutcherry, and paid over the money to the Amildar.

The shánbhóg was also required to keep a detailed account of demand, collection and balance of every individual in the village, and when the crops of the lands cultivated under batayi tenure were reaped and piled into heaps, he had to make arrangements for their security; and, on receiving the orders of the Amildars, to see that they were threshed, and the grain properly stored till the time arrived for its division.

At the season of cultivation, the shekdar made a tour of the villages in his circle, and advised and directed the shánbhógs in their arrangements. In the case of lands under tanks, he ascertained the portions which were to be under sugar-cane and under rice, and should the supply of water be insufficient to bring the whole of the Sarkar lands under full wet cultivation, he arranged for the production of the most remunerative dry crop on the portion which would remain wholly or partially unirrigated. When the Amildar visited the hobli, the shekdar was his main assistant in settling the jamábandi. He had to rely upon him for the information which would enable him to form a true judgment of the state and resources of the hobli, to bring concealed cultivation to light, and to expose collusive arrangements with the ryots and other frauds of the shánbhógs. When the crops under amáni or Sarkar management were matured, the shekdar had to see that the shánbhógs took the proper steps for reaping and threshing and storing them, and was held responsible for keeping the shánbhógs and other village authorities of his hobli up to the proper mark of vigilance and honesty in all these respects. Whenever there was a public market within the limits of the hobli, the shekdar was required to prepare regular prices current of the rates fetched on each day, and forward them to the Amildar. He had also to secure all unclaimed property found in the villages, and send it up with full particulars to the same authority.

What the shekdar was to the shánbhógs of his hobli, the Amildar in his revenue capacity was to the shekdars of his taluq. Every dispute was referred to him, and whenever they related to kandáyam lands, he had the power of deciding them summarily, subject of course to an appeal to the Superintendent and the Commissioner, whom also he addressed direct if any extraordinary occurrence took place in his taluq.

The Amildar made a tour of the hoblis in the month of September, to ascertain the condition of the inhabitants and the prospects of the season, and to see that the shánbhógs and shekdars were exerting

themselves to bring the lands into cultivation. After having satisfied himself on these points by personal observation, and looked narrowly into all the other arrangements entered into by his subordinates, he settled the *kulvar jamábandi*, village by village, and furnished regular ten days' reports of the progress he had made. The whole of his settlements were finished in November.

The Sarkar batayi lands of the Vaisakha fasal, or May crop, were brought fully under cultivation in October and November, and by February or March the Amildar was able to forward to the Superintendent an estimate of its probable out-turn. The crops were threshed and heaped in May or June, and the Amildar had then to see to the disposal of the Sarkar share. Sometimes they were put up to public auction as they stood upon the fields uncut, but generally after they were reaped and threshed. Should the sums bid be considered inadequate, the grain was stored in the government granaries till prices became more favourable. Exactly the same course was pursued with the Kártik or November crop, which was planted in the mungári or first rains, and reaped in October or November.

One important duty of the Amildar was to inspect the bunds of the tanks and the embankments of the water-courses in his taluq, and keep the Superintendent constantly informed of their condition.

The duties of the Superintendent, who was at once Collector, Magistrate and Judge, were laborious in the extreme, and could only be carried on by a man of a very clear head, active habits, and great powers of mental and bodily endurance. The Superintendent generally proceeded on his jamábandi circuit as soon after the month of November as was practicable: that is, as soon as the Amildars had concluded their settlement of the taluqs. The pattas, which had been previously prepared, of each cultivator's holding, according to the Amildar's settlements, were then distributed to the ryots. The patta contained a description of the land held by the ryot, and the amount of assessment to be paid by him on each different plot of land, as well as any other tax which he might have to pay. This was read over to each man as he was called up to receive his patta, and he was asked if it was correct. Thus any discrepancy or false entry was instantly brought to notice, and the matter was inquired into, the error being rectified, or the doubts of the ryot satisfied, on the spot, and in the presence of all the other ryots of the village. Thus each cultivator not only had an account direct with the Sarkar, but he was brought face to face with the European Superintendent for the purpose of assuring the latter that his account was correct. In this patta were entered the kists or instalments of the ryot as they were paid by him. Ordinarily, after the

pattas had been thus distributed by the Superintendent in person in one year, the Amildars of those taluqs were instructed to distribute them for one or two intervening years, and only such ryots as had objections to make in regard to the assessment claims against them, or who were applicants for remissions, were invited to assemble at the Superintendent's circuit camp.

This system of distributing the pattas was a very salutary one; it brought every tax-payer, however trifling his amount might be, in personal contact with the Superintendent, and as all were obliged to be present to receive their pattas, an opportunity was thus offered to everyone to seek redress for any grievance which he might not otherwise have had inclination or courage to bring forward. This circumstance in itself was a check to oppression, and constituted perhaps the chief advantage of the Ryotwar system, which strictly prevailed in Mysore.

It was on these occasions of distributing the pattas that the subject of remissions was taken up and inquired into, the Superintendent keeping this entirely in his own hands. There was no strict principle laid down upon which remissions were made; each individual case was taken up and decided on its own merits, the condition and means of the applicant being the ruling causes. But, generally speaking, the assessment was not levied on land which had not been turned up by the plough, or purposely kept fallow for pasture, whenever it could be shown that the ryot had not the means of cultivating it that year. The truth or otherwise of such representations was readily ascertained, for all the cultivators of the village were present to refer to, and the applicants for such remissions were generally of the poorer classes. The Superintendent decided upon the question at once, and everybody saw that it was an act of his own, and not of any bribe-expecting mediator. The consequences of such summary decision of remissions were: first, a check upon unreasonable or false applications for such remissions, because no corrupt trade was made in them; and secondly, that there were no outstanding balances (or very small ones) in the collections at the end of the year, because those who could not possibly pay up the full demand had been relieved of that difficulty.

On these jamábandi circuits, the Superintendent caused an examination to be made of the village accounts as kept by the shánbhógs, which again were compared with those (and the abstracts made from them) which were kept in the taluq cutcherries. The extent of batayi lands cultivated was compared with that of former years, relatively also to the current season and quantity of rain which had fallen. The amount value of the produce of those lands was also compared with

that of former years relatively to the concurrent rates of prices. The changes in the holdings of kandáyam lands were closely scrutinized, and concealed cultivation sought out and brought to account.

The Superintendent confirmed or modified tenders made to the Amildars for leases varying from one to five years, as well as the terms upon which new land was taken up on kandáyam. Leases for five years were usually granted upon a fair advance, on the average of the previous five years' produce being tendered. As a general rule, such leases of villages were only given to respectable landholders of that same village. New lands were granted upon the average rivaz or rate of the village, at a progressive rate, generally of three years; $\frac{1}{3}$ for the first year, $\frac{2}{3}$ for the second, and the full rate for the third: if much expense and labour were to be incurred in clearing, the progressive rate was extended to four or even more years, nothing being charged for the first year.

On these circuits it was expected that all disputes, of whatever description, referable to the Superintendent would be finally decided; and ten days before the Superintendent arrived at a taluq, a proclamation was published in that taluq informing the people that the Superintendent's cutcherry would arrive there on such a day, and remain so many days; and inviting all persons having any complaints or representations to make, to present themselves before him within that period; and declaring that should they omit to do so their complaints would not be attended to afterwards, unless good reason could be shown for their default.

A very important part of his duty was to inspect the works of irrigation in his Division; to see if the new works had been efficiently constructed, and the repairs properly executed, and to devise remedies for defective works. He had also to look after the roads in his Division; in short, he was expected to see with his own eyes as much of everything as possible.

Nagar.—Of the institutions of the Nagar country, which were somewhat different from those of other parts, Mr. Stokes, under date 1834, gives an interesting account, from which the following extracts are taken:—

In the Malnad, villages were almost unknown. The owner of each estate had a large house on some eligible part of it, and his tenants, labourers and slaves resided on their respective allotments. Each village in the open country had its community, composed of gauḍa; talwar or watchman; madiga, baraki or kulavadi, whose office seems to be the same with that of the toti, a term not used here; shánbhóg or accountant, whose charge, however, in Nagar generally included several villages, or a whole mágani; kaiwáḍadavaru or handicraftsmen,

including the badagi or carpenter, kammar or smith, agasa or washerman, and hajam or barber; the ayya or Jangam priest, who performed the requisite ceremonies for the Lingavant ryots, and was sometimes also a schoolmaster; and the pujari who officiated in the village temple. There was also in every village an influential and generally rather old ryot, known by the title of Hiriya Rayta, "the chief ryot," or Buddhivanta, "the wise man," who was consulted on all occasions, and was usually the spokesman when any representation had to be made to the superior authorities. In the Malnad, two or three leading ryots or Heggades in each mágani, acted in behalf of the ryots of their shíme or district, in all transactions of a common interest, such as arranging sales of areca-nut with the merchants, and the details of the settlement and collection with the Sarkar officers; and engagements signed by them were held to be binding on those ryots. There were also in every taluq a few leading men called Mukhyastar, generally landholders, who took an active share in public proceedings, and were nearly always with the Amildar. They exercised an important influence on the management of the taluq, which was frequently directed to their own private profit, by combining with the Sarkar servants to defraud the Government; but was also sometimes beneficial in checking oppression, and protecting the interest of the ryots.

The Gauḍas of villages and the Pete Shettis had a great many rights and privileges, called *mána mariyáde*, of which they were exceedingly tenacious; one not the least valued by them was the right of precedence, exercised chiefly in receiving támbúla or betel in public assemblies in the order established by custom, any deviation from which would be stoutly resisted as a grievous insult. The Pete Shetti or headman and the tradesmen (*vartakaru*) of the trading towns, who were generally Banajigar, were always treated with great respect. The Shettaru, as he was called in the plural number, had commonly a mánya or privilege of passing one or more bullock-loads of goods, daily, free of custom duties. He also levied *pasigi*, which was a small quantity taken in kind from all produce brought for sale to his market. The Shetti Vartakaru constituted a sort of court of arbitration, which was the favourite tribunal of all the trading community and of many others.

Slavery, chiefly however in the agrarian form, existed from time immemorial, and to a great extent, in the Malnad. It was unknown in Kadur, Tarikere, Chennagiri, Harihar and Honnali, and was rare in the intermediate taluqs. The population return showed, in the five Malnad taluqs, 4,169 houses, containing 9,973 persons of the Holeyar caste; and it is computed that the whole of these were properly slaves, though many had now escaped from the authority of their original

masters. Slaves were of two descriptions—*honn-ál* (from *hon*, gold) and *mann-ál* (from man, earth), of which the former might, and the latter might not, be transferred from the soil to which they were attached. The term by which slaves were designated, *ál*, did not in its original signification imply any notion of servitude. It merely meant a person (man or woman), and was applied equally to hired servants or daily labourers. Certain limits, termed *mettu*, steps, were fixed, which the slave must not pass without permission, on pain of being considered a fugitive. When a slave ran away, his master searched for him, and if successful applied to the Amildar of the taluq to compel his return. The Native Government professed to comply with such applications, but the interference of the Amildars was now prohibited. Masters had been considered to possess the right of punishing idle or refractory slaves by beating; no express order was given on this point, but the power is supposed to have been abrogated by the police regulations. The Malnad landholders frequently complained of this alleged departure from the custom of the country, but it is clear that slavery had been generally losing the support of the Government from the beginning of the present century, and it was generally found, on inquiry, that slaves whose return it was requested should be compelled, had left their masters fifteen or twenty years.

The usual maintenance (*paddi*) of slaves in the Malnad was one kolaga or six siddi of batta or rice in the husk, equivalent to a pakka seer of rice, for each man, and five siddis for each woman, per diem, which was doubled on the new and full moons and sometimes at the feasts. An annual supply of clothes, consisting of one kambli valued at half a rupee, to each man and woman; one dhoti or waistband worth half a fanam, one panche or coarse cloth five cubits long, and costing about two annas, and one rumal costing a quarter of a rupee, for each man; one shíre or cloth ten cubits long and costing a rupee for each woman. On the occasion of marriages, the master of the man had to purchase a wife for him, usually for 3 or 4 B. pagodas, from her owner; unless, which was most commonly done, he could give the daughter of one of his slaves in return. This practice was called *sattai* or barter. The expenses of the marriage were borne by the master of the husband, and commonly amounted to six rupees and three khandaga or 150 seers of rice; the children belonged to the owner of the man. When a slave, with the permission of his master, worked for another person, that person must supply him with food and clothing as above stated, and must besides pay a small annual sum, generally half a B. pagoda to the master—this was called *hegal bádige*, shoulder hire. The ordinary price of a pair of slaves, man and woman, called *gudi*

saraku (gudi, a Holeyar's habitation; saraku, goods or stock of any kind) was 12 B. pagodas, and with a pair of bullocks they were supposed to be sufficient for cultivating five khandaga of land.

These slaves, though degraded, are much better off (says Mr. Stokes) than those in Malabar; they are in general stout and healthy in appearance, and show no signs of being either overworked or underfed. They are rapidly approximating to the state of the better class of agricultural labourers. The Ikkeri princes possessed a great many slaves, acquired by conquest or otherwise, some of whom were employed in the palace garden at Nagar, and others in keeping in repair the forts of Lakvalli, Kavaledroog, &c. They were all retained by Haidar and his successors until the end of 1834. The establishment was a source of great abuse, but the slaves considered its abolition rather in the light of dismissal than emancipation. Besides the Holeyar, there are a few slaves born of women who have lost caste, or who in infancy have been sold by their parents.

As regards the tenure of land in Nagar, the people were accustomed to consider all land to belong to the Sarkar, unless specially alienated, but admitted the right of sale or mortgage in gardens. In the Malnad it is clear this right existed in rice-lands also. It appears from old sannads that the price of the land, as well as a nazar, was paid to the Sarkar by persons who founded agraháras. A ryot's land could not without his written consent be permanently transferred to another. Both rice-lands and gardens were cultivated by tenants of the proprietor, on rent called gadi or guttige, generally in kind, with a small payment in cash. The registered landholders paid the assessment direct to the shekdar and shánbhóg, and there was no umbali or village establishment. Some ryots held the whole or parts of several villages. The shánbhóg in this case kept an account in the name of each ryot. This was called *kulavar grámvar*, instead of keeping an account for each village or grámvar kulavar.

In the Eastern taluqs no land was saleable but garden or umbali and uttára land. Gauḍas sold their gauḍike, but this merely included the usufruct of the umbali, and other emoluments and privileges attached to the office, but not the land of the village. The usual price in Shimoga was three years' purchase of the umbali shist. In Chikmagalur and Vastara were ryots called kulagars, who claimed peculiar rights, amounting nearly to absolute property, in the land of their villages; and there were almost in all villages some ryots whose tenure seemed to be of longer standing and more respected than others. In Haramkatte, Ajimpur, and Yegati, there were traces of a tenure by shares, called *chigar vantige*, in which the whole village was parcelled out into

lots of equal value, containing a due proportion of rice, garden, and dry land. There were also traces of a similar apportionment in the farm of a ryot, of a black, red, and sandy soil, and near, distant and middle fields, which he was not allowed to separate. In all these taluqs the settlement had been made by villages. Where there was land assigned to the office, the old gauḍas generally retained the management of their villages, elsewhere they were displaced by temporary renters. They controlled all arrangements for cultivation, and occasionally took land from a ryot against his consent, though they had no recognized right to do so, unless he left it uncultivated, in which case it was transferred without ceremony to a new occupant, whose tenure was the same as his predecessors. Great impediments were placed in the way of a ryot throwing up land, or migrating to a new village. The settlement was now made with each ryot, and all restrictions regarding the occupation of land abolished. In these taluqs land was seldom cultivated by tenants, except on the terms of an equal division of the crop, the tenant providing seed and stock.

On a few lands the old money assessment had been commuted since 1800 for a payment in grain, for the ostensible purpose of supplying some fort or chatra. But the disposal of this grain was liable to great abuse, and the original money payments were therefore restored. The batáyi settlement was now abolished everywhere except in Kadur, and the beds of tanks occasionally cultivated.

The shist, with the additions of dasoha, pagudi and patti (described pp. 593–4), was further increased 12 as. per pagoda by Haidar in the year after he took Bednur, in lieu of the shánbhógs' percentage at half a fanam per pagoda called *vartane*, of a private fee paid to them called *kattu aswari*, and of service and supplies required from the ryots for certain forts; but the amount of this last item varied in different places according to the usage.

Sivappa Nayak's revision seems to have extended to the five Malnad taluqs, Sorab, Shikarpur and Shimoga, but not to Honnali and Tarikere, though the distinction into shist and patti was made there. In the Malnad, the above shist and patti had generally continued the limit of the assessment till the present time. In the gauḍa guttige villages from Sorab eastward, the gauḍas paid generally the full shist and patti on the whole village, but let some land to the ryots at the shist alone, which was called kattugadi; some at the shist and 50 per cent. patti; and some at double the shist. About the year 1805–6 the difference on all fields let for more than the authorized patti was collected on account of government and added to the beriz of the village. Till 1832–3 the shánbhógs registered the shist only of each field, and the

same field was sometimes let as kattugadi, sometimes at 5 fanams patti, and sometimes at pagoda patti, according to the pleasure of the gauḍa. They were now required to fix the patti as well as the shist on each field, taking it at the highest rate recently paid on that field.

Manjarabad.—For the Manjarabad country, part of the old province of Balam, similar details are given by Major Montgomery, under date 1839.

The form of village government in the taluqs of Manjarabad, Belur and Maharajdroog, was essentially the same as in other parts of the country, but the constitution of society in the Malnad hoblis differed from that of the plains, in the general absence of Brahmanical influence, and a more marked difference between the upper and lower classes; the whole population being as it were divided into two distinct grades, the Patrician and Plebeian; it might perhaps be said, the freemen and slaves. The former consisted of Patels and ryots of the Lingáyit, Hale-wakkal, Devar-makkal, Malari, &c., castes: the latter of the Dhers and Bedars. But the patrician class may be again divided. There were the patels of náds, who were exclusively of the Lingáyit or the Hale-wakkal játi; the patels of the mandes, and gráma patels, these were all of the Devar-makkal játi, the Halepaika of Canara.

Uggihalli Devappa Gauḍa, a Lingáyit, was the patel of Malavana nád, consisting of five mandes, rated at 1,000 pagodas each. He was universally acknowledged to be the senior patel of the Manjarabad taluq, and as such was treated by the others with the greatest respect. He was called the Shime Gauḍa. Nanja Gauḍa, however, the patel of the Kittal nád of Belur, was descended from a senior branch of the family, and his ancestors, previous to the dismemberment of the province of Balam, when Belur became a part of Mysore, were admitted to be the Moktesar Patels. When therefore Manjarabad, as well as Belur, became a portion of Mysore, it was very difficult to settle who should have precedence when these two met at the annual játres at Halebid and Devavrinda, and much jealousy existed. However, sometime ago they wisely thought it better to compromise the matter. The families intermarried; Nanja Gauḍa agreed to refrain from appearing in future at the játre of Devavrinda, and Devappa Gauḍa, on his part, did not appear at Halebid until after Nanja Gauḍa had paid his devotion. The second in consequence amongst the patels was Manali Vire Gauḍa, also a Lingáyit, of Kibbat and Balam, which together form four mandes, rated formerly at 1,000 pagodas each. The third was Hettur Dodde Gauḍa (of the Hale-wakkal jati) of Hettege nád, consisting of three mandes, rated formerly at 1,000 pagodas each. The fourth was Kalur Vire Gauḍa (Hale-wakkal) of Mokkun nád, consisting of three mandes rated as the last. The fifth was Godena Komari Gauḍa (Hale-wakkal) of Bisale and Uchchangi, consisting of the same number of mandes, and rated the same as the two last. The sixth and last was Mudigere Sidde Gauḍa, a Lingáyit of Mudigere

nád, which consists but of one mande, rated at 1,000 pagodas. The Nád Patels were also patels of the mandes in which they reside. To the other mandes there were separate patels.

The whole of the duties of the internal government appear formerly to have been conducted through the agency of these patels, and they undoubtedly enjoyed very large ináms. The patels seem in fact to have been feudal chiefs ; they did not, it is said, wage aggressive warfare beyond their own boundaries, but an inspection of their habitations, even now, shows that they cultivated the art of military defence. The houses of all are fortifications, in some instances surrounded by a broad and deep wet ditch, the only passage across which is defended by a strong gateway, looped for musketry and matchlocks.

Of the power of the Patels in former days, it is of course impossible to obtain an accurate account. But it may be supposed to have varied with the character of the reigning Pálegars, and the Superior Government. They are said, however, at times to have exercised a despotic sway, extending over the lives of those under them. During a part of the reign of the Rája even, and the more vigorous administration of Purnaiya, it was not, it is said, uncommon for them to assemble their clansmen and servants, and openly resist the public authorities when they appeared at their villages to ask for the Sarkar dues. Their resistance on these occasions was frequently successful, and led to a compromise of the demand.

Their ostensible power was now confined to assembling the ryots for the chase, to assisting the shekdars to carry into effect the orders of the Amildar relative to the cultivation, to arbitrating in petty disputes, whether relative to land or otherwise, and the legitimate weight which their advice and opinion must have in all matters relative to the internal management of the taluq. It could not, however, be doubted that the generality of the ryots would blindly obey their orders in almost all cases, whether opposed to, or in accordance with, the wishes of the Government. Their privileges were now confined to the collection of a fee of one fanam, termed *árati kánike*, paid to the village patel on every occasion of marriage in his village, and to the precedence accorded to them at all feasts, which is principally displayed in the distribution of betel. The nád patels are helped first according to their rank, and then follows the distribution in succession to the others. In cases of disputed precedence, the distributor crosses his arms, and offers to the different claimants at once. The patels had now no acknowledged umblis, the whole having been resumed by Purnaiya, but there is no doubt that they possessed the best lands, and managed to keep them assessed much under their real value. The ryots of the higher castes

who were not patels, and happened (which was very seldom) not to be related to any of them, still acknowledged their superiority, and yielded them obedience.

The Dhers, Bedars and others, who have been classed as the Plebeian population, were almost universally the servants or slaves of the Patrician classes, and but little difference existed between the free servant and the slave. The latter were termed Hale-makkalu or old sons. They were fed from their master's table. They were clothed by him. They were married at his expense. They were feasted and received presents at his festivals. They mourned as members of the family when deaths occurred in it. They performed all menial offices, whether domestic or agricultural. They were sometimes (but apparently not necessarily) disposed of with the family estate. If purchased separately, they were liable to be resold, but the sale of slaves separately from the land was never, it appears, of very frequent occurrence.

Slavery now ceased to exist, inasmuch as no interference on the part of the Government servants to compel a slave to serve his master was permitted, and any complaint of a slave against his master was investigated and decided as if both parties were equally independent. But at no period would it appear (as far as can be ascertained) that slavery in Balam was invested with the more revolting features so common to it in Africa and America. The sway of the master seems generally to have partaken more of a paternal character than the terms "owner and slave" would indicate, and frequently as it had been inquired of those who still considered themselves bondsmen, whether they would not wish to change their lot, never yet was met one who acknowledged that he repined at it. Probably there had not for many years been any very great difference in the condition of the slave and free labourer; the latter being generally paid with food and clothing of nearly the same quality afforded to the former. Nor was it the custom for the free labourer any more than the slave to employ his children with any other than his own master, unless the master should have given his consent, and in cases where the marriage expenses of the free labourer had been defrayed by the master, he could not leave his service till the amount was refunded.

The people considered a proprietary right in the land to have been conveyed by the rulers of Vijayanagar to the different families of emigrants who located shortly after the subversion of the Halebid dynasty in 1326. The existing gauḍas and ryots who claimed to be páldars or shareholders of the different villages, professed to be the descendants of these emigrants, and declared that their right to the land had never

been disputed, and was strictly respected, till the appointment of Amildars by Purnaiya and the Rája, since which time many old proprietors had been forcibly dispossessed of their lands, which had been rented to others.

Sales of páluvantige land do not seem to have been frequent, but the right to sell and mortgage it was universally admitted. The deeds of sale assimilated with those used in Mysore, more than those existing in Canara. The kraya patra, which included in the transfer house, land, back-yard, dung-heap, and kulvadi,[1] was the most perfect conveyance that could be made, and it was considered to alienate all village rights in perpetuity, as well as the land. A patel selling his land, but retaining his house, back-yard and dung-heap, retained with them his village rights and precedence. This land was generally considered recoverable by his heirs, at however remote a period, on their repaying its price; provided always that they had retained possession of the house and back-yard.

Sáyar.—At the time of the assumption of the country, the sáyar was found to be mostly farmed out, and it was next to impossible to ascertain the extent of its resources, the number and the nature of the strangely miscellaneous articles it included, or how far it was susceptible of improvement. The accounts of the Sarkar gave the nominal, not the real, settlements, and those furnished by the contractors themselves were of course not to be relied on. As immediate reform thus became impracticable without risk of serious error, the only thing to be done was to watch the renters narrowly, and to set about collecting the required information in every possible way. In addition to this, the revenues of the State were in a most reduced condition, with a heavy load of arrears of uncertain amount to be cleared off, and it was considered better, therefore, in every branch of the administration, to proceed gradually and with caution, grappling with the most glaring grievances, and correcting the others one after another as the state of the finances improved, and acquaintance with the real state of the country advanced.

In this way many duties were allowed for a time to remain which can be justified by no abstract principles of political economy, but which the state of commerce and other local circumstances rendered it advisable to retain, for a time, at least, if not permanently. The rules, however, under which these were levied were purged of all ambiguity, and being expressed in the simplest terms, were intelligible to the meanest trader; and the sáyar may very early be said to have been

[1] It would appear by this, that the kulvadi was formerly considered the slave of the proprietor of the land.

collected without a wrangle. But down to the year 1854 no less than 769 items of Sáyar taxation were gradually swept away, amounting in the aggregate to the annual value of $10\frac{3}{4}$ lakhs of rupees.[1]

Bearing heavily as these taxes must have done, it may safely be assumed that they were not so much detested by the people on account of the money they took from their pockets, as on account of the iniquitous use which was made by the izardars and their myrmidons of the police powers with which it was a necessary part of the system to invest them. What these police powers must have been, and of the generally vexatious nature of the taxes, an idea may be best formed by selection of a few specimens.

In certain places, and in particular castes, taxes were levied on marriage, on taking a concubine, and on incontinency ; on a female of the family attaining puberty ; on a child being born, on its being given a name, and on its head being shaved ; on the death of a member of the household, and on the subsequent purification ceremonies. Umbrellas were taxed, and so were individuals who passed a particular spot in Nagar without keeping their arms close to their sides. There was one village whose inhabitants had to pay a tax because their ancestors had failed to find the stray horse of an ancient pálegar ; and there was a caste of Sudras who were mulcted for the privilege of cutting off the first joint of one of their fingers in sacrifice. Fees were levied from bankrupt Government contractors for permission to beg (it is not stated what classes were likely to bestow alms upon them) ; and taxes were demanded from individuals who went to live in new houses, or who listened to the reading of the new year's calendar. To this may be added the fact, that the daring climbers who robbed the nests of the myriads of wild pigeons that build against the perpendicular sides of the vast ravine into which the Gersoppa river precipitates itself, were made to pay a percentage on the grain which they thus collected at the daily risk of their necks.

Each of these items had its own particular name, under which it was formally entered on the records of government as among the resources of the State. In some places capable of producing certain articles to an unlimited extent, the local rates became so exorbitant as literally to prevent their production. An instance of the manner in which the tobacco tax was levied in one taluq will suffice to show what opportunities existed for oppression and extortion, as well as the impediments which existed to the facilities or freedom of trade.

Every ryot in Kadur who wished to sell his tobacco, had to send for the

[1] The following are the particulars :—

No.	Head.	Amount.	No.	Head.	Amount.
42	Revenue	Rs. 1,57,758	187	Chillar Bab	Rs. 79,988
482	Sáyar	8,24,625	18	Mohatarfa	4,166
39	Abkari	7,289	1	Amrayi	78

Government gumasta, who first took a ¼ maund, called *male*, on account of Government; then another ¼ maund, called *kai male*; then the heap was weighed; then so much, called *pammu*, was charged on each maund; then another tax, called *sunka*; and lastly another, called *mai pammu*, was levied; and then it had to be taken to the nearest katte, where it paid transit duty: when it was free to start, and run the gauntlet of the kattes along the road to the town or market for which it was intended.

As regards the Hálat or Hásil on areca-nut, the three great contractors for the Ilákhas of the Nagar Division and the principal merchants used to meet annually at a place called Arga, and then fix, according to quality and locality of production, the price to be given for areca-nut throughout the Division; and every ryot in the country was obliged to submit to the arrangements then decided upon or have the produce of his garden left upon his hands, for the whole system was so complicated, and all the subordinates so thoroughly and entirely under the control and authority of these confederates, that no man could export for himself; the difficulties he had to contend against being such as are now scarcely credible. All producers, almost without exception, were obliged to sell to these great monopolists, who exported at the minimum rate which they themselves fixed, and who, profiting by their position, their knowledge of the rules in force, and their power to act with impunity at a distance from all control, made immense fortunes and allowed the ryot only the smallest possible amount of profit or remuneration. Their advantages did not end here. They had also the privilege of exporting their goods without paying down the hálat or transit dues, which they were permitted to adjust at a subsequent period, to allow, as it were, of their selling the article and realizing the price previously to being called upon for the full demands of the Sarkar. This gave rise to arrears to a most serious extent. They also possessed another immense advantage over the outside trader,—having the monopoly entirely in their hands, they never paid the ryots in cash. At first only sufficient money was given to enable the cultivator to pay his kist to Government, the rest remaining to be adjusted at a subsequent period, when a portion only was paid in cash, the balance always to a great extent being made good by cloths, valued at the maximum price, and brought back by the merchant or an agent from the great marts of Bangalore, Wallajabad, &c.

The number of articles upon which duties were remitted in the *Nagar Division* was 248, and the total annual value of remissions made since the assumption of the country was Rs. 2,04,925-10-2.

In 1832-3 and 1833-4 all duties on grain were abolished. In 1834-5 the information collected was sufficient to justify the Commissioner in taking the sáyar under amáni in all but four taluqs; which were also taken under the same management very shortly afterwards. In 1837-8 all internal duties were taken off iron, steel and cattle; and nine other items, oppressive, but of little value, were likewise struck off. In 1842-3 all transit duties were taken off iron, steel and cattle, and nine other items struck off.

In the same year, all transit duties were taken off supari, pepper and cardamoms; and in 1843–4 the duty was taken off sheep's wool and coffee in transit. In 1844–5 vexatious duties were taken off tobacco, and the contract abolished.[1] At the same time all unequal privileges as to rates of payment were done away with, and a uniform standard having been fixed instead of the former interminable variations, the trade in supari, pepper and cardamoms began to take its own natural course throughout the country. As a substitute for the abolished tobacco contract, a hálat of one rupee per maund was fixed on all produced in Nagar, and an import duty of 1¼ on tobacco imported for consumption. A full drawback was given for all imported tobacco on re-exportation. The above changes were followed in 1847–8 by the final abolition of all remaining transit duties, so that nothing remained of the original system excepting some small dues on a few minor articles, to be removed at the first convenient opportunity.

To make up for the considerable loss of revenue sustained by these reductions, an additional hálat was put upon cardamoms, and on the first sort of supari, while a reduction was made on the second and third sorts of that article, and on pepper. This step was not taken without consultation with merchants concerned in the trade, and with their full consent. These merchants expressed themselves fully sensible of the weight of exaction and loss by detention from which they had been relieved.

In the *Ashtagram Division*, from the period of the assumption, the duties on 152 articles were struck off of the annual value of 3,09,863–4–7 rupees.

In 1832–3 and 1833–4 were struck off the whole of the duties on grain. In 1835–6 the transit duty on horses was abolished. In 1836–7 duties ceased to be levied on firewood, old timber, European articles, sandalwood oil, and vegetables on entering the town of Mysore. Many minor duties of the same kind were also struck off, among them the Mahant rusum (*see* p. 627). And in 1837–8 fruit, plantain leaves and straw were added to the articles allowed to pass free. In 1838–9 and 1839–40 the tax on stalls erected for the sale of parched grain, paddy, husked rice, and buttermilk was struck off. An item called *pasige*, which was a fee in kind exacted by the renter on almost all smaller articles offered for sale, was discontinued, as was also the

[1] As the effect of this the revenue under the head of tobacco rose immediately 30 per cent. The mere withdrawal of the contractors made the true state of affairs at once fully apparent. On the trade becoming free, the producers found that they were able to obtain for their whole stock Rs. 3½ the maund, instead of R. 1½, which was all the contractors gave, and all that they could obtain under the previous system, as they could sell to no one else. And the extortion of the contractors will be still more fully appreciated when it is mentioned that the retail price at once fell from Rs. 6 to Rs. 5. Thus it will appear that the consumer, the producer, and the Government all gained by the abolition of the contract system, and that the profit of a contractor was scarcely less than 300 per cent.

duty on butter. The tax on blacksmiths' forges was likewise abolished. This last only formed part of an extended measure of relief granted to the manufacturers of iron throughout the country, the greater part of whose heavy burthens were brought to account under the head of land revenue. In 1840–1 was abolished a most vexatious transit duty on cattle, which had been made to extend to cows and bullocks sent from the town to graze on country pastures, and an item termed *dukán pasára* was struck off. It consisted in a fee levied from certain poor people for the privilege of sitting down in the street to sell parched grain and other things from their baskets.

Up to this time no more had been done than has been here detailed, except that the renters had been deprived of all police power, and their proceedings in other respects been most narrowly watched. Sufficient insight, however, had by this time been gained into the working of the system to justify further steps. At the close of 1841–2, therefore, the accounts underwent a most searching scrutiny, and all items not properly belonging to the land customs were transferred to their proper heads; and amongst them all those which constituted the Pattadi Sáyar were removed from the books.

Even after this it was found that many abuses still existed in the system, which it was impossible to arrive at from the falsified accounts of the renters, and it was therefore resolved that the Sáyar and Panch-bab of the Mysore taluq for the year 1842–3 should be taken under amáni management as an experiment. The above experiment having answered beyond expectation, permission was granted to extend the amáni system in 1843-4 to ten more taluqs. Orders were also issued for the immediate abolition of many kattes in those taluqs, and for sweeping away the remaining transit duties in the taluq of Mysore, where their effects had been found to be more pernicious to trade than elsewhere. In 1844-5, the sáyar and abkari in all the remaining taluqs were brought under Sarkar management, and transit duties were everywhere abolished. A most vexatious impost, called *danmár*, was also discontinued. It consisted in the exaction of a fee of one Kanthiraya fanam on every cow or bullock sold, no matter whether by the breeder to a ryot, or by one ryot to another. As the price of the small cattle of the country was generally about ten or twelve fanams, this apparently trifling fee, levied as it was on every transfer, became a really heavy burthen.

In the *Bangalore Division*, from the period of the assumption, the duties on 312 articles were struck off, including grain, of the annual value of Rs. 3,73,208–6–10.

It is of course needless to mention that in this Division the grain duties had been swept away, and a vast number of items expunged from the tariff as in the other Divisions. But notwithstanding that a total reform was needed in the Bangalore Division only less than in the others, yet, as the sáyar made up a very large item of the revenue, caution was required in disturbing it. As a first step, the whole was taken out of the hands of the

izardars or renters, and put, in the year 1846-7, under Sarkar management; and the duties were levied avowedly on the old rules and system, the better, by acquiring a practical knowledge of those old rules, to reform and improve them afterwards. The result of that year's arrangements was an increase of nearly $48\frac{3}{4}$ per cent. in this item of revenue over that of former years under the renters, and an assurance that a fair and equitable method of collecting these duties might be devised without any very great loss to the Sarkar.

The first modification of the old sáyar system in this Division was commenced in July 1847. It was simply the levying an *ad valorem* duty of 4 per cent. on all articles at the place of export or despatch; and at the frontier kattes on all articles entering the Division. To this general rule there were but three exceptions: 1st, raw silk, on which an *ad valorem* duty of 2 per cent. only was imposed; 2nd, tobacco was rated in three classes:—i. 12 Kanthiraya fanams per maund; ii. choora or fibres, 9 fanams; iii. kaḍḍi or scraps, 6 fanams per maund; and 3rdly, betel-leaf for the consumption of the Bangalore town was charged $1\frac{3}{4}$ cash per bundle. The above were the rates fixed upon the tobacco entering the Bangalore taluq, but in all other parts of the Division it came under the general rule of 4 per cent. *ad valorem*. This arrangement obtained for five months, till December 1847, when the rules were revised in order that they might be adapted to act in concert with the sáyar rules which were being simultaneously modified in the other Divisions, and the revision thus made was as follows:—Articles merely passing through the Division, to or from other parts of Mysore, to or from the Company's districts, or from one part of the Company's territories to others, were exempt from duty. Articles imported from the Company's territories, and consumed in this Division, were charged 4 per cent. *ad valorem*; also articles exported to the Company's territories from the Division. An *ad valorem* duty of 2 per cent. only was leviable on articles exported to, or imported from, the other Divisions of Mysore. On certain articles produced and consumed in this Division, an *ad valorem* duty of 2 per cent. was leviable at the place of production, and the same at the place of consumption. The duty on raw silk, tobacco and betel-leaf was the same as stated above. All sugar and saccharine produce was exported free of duty; but sugar, &c., consumed in this Division paid duty the same as other articles.

In Chitaldroog there was, as in other Divisions, no regular system or fixed principle of taxation under the former administration; but the practice was to tax every article, whether of home or foreign produce; the amount of each tax was undefined and arbitrary. The tables of rates which were in the sáyar kattes were never acted on, either before or subsequent to the assumption of the country. In practice every village and every custom house had its own rates, and these varied so much that the classification of them was impracticable. All disputes relative to these taxes were decided by mámul or local usage. The

sáyar duties were divided into *bhara márg* and *chillar márg* (transit on high and cross roads); *sthal bharti* (duties on exports or productions); and *karag padi* (town duties), with other local taxes included under the head of sáyar. While taxation was thus general as respects things, there were privileged classes and persons who were altogether exempt from duties. The sáyar was generally rented by taluqs, but for some years the whole faujdári of Chitaldroog was rented to one individual The renting system was continued till 1845-6, and in the following year the sáyar was placed under the management of the public servants.

Since the assumption of the country, however, many taxes levied on caste and domestic customs and institutions of vexatious character were gradually remitted. In 1832-3 and 1833-4 duty upon grain was abolished. In 1835-6 the duty was taken off china articles. In 1837-8 duty upon vegetables, fruit, plantain and jungle leaves, and on horses, was discontinued. In 1838-9 duty upon firewood, grass, milk, sweetmeats, parched rice, butter-milk, elephants, and fowls, was remitted. In 1841-2 an item termed *bazar pasgi*, which was a collection in kind, from the renters of grain and other articles, for erecting stalls on market days, was abolished. In 1845-6 the duty upon cattle was abolished, and in 1847-8 duties on silk, on cotton, on all saccharine produce, and all transit duties, were abolished.

The following rules for the collection of sáyar were established in this Division. The sáyar duties on all but thirty-eight articles were abolished. Of the above thirty-eight articles, six were made subject to an *ad valorem* duty, as follows :—Sthal bharti or export duty of 6 per cent. was levied on supari of inferior quality, produced in the Division and exported, besides the karag, or town duty, on what was retained or consumed. Sthal bharti duty of 20 per cent. was levied on dry cocoanut, besides the consumption duty on it, which was also to be levied according to the existing mámul. A bharti duty of 5 per cent. was levied on date jaggory, besides the karag, or town duty, according to mámul. A bharti of $\frac{1}{2}$ a rupee per maund was levied on all tobacco the produce of the Division, excepting in the taluqs bordering on the Bellary District, where only two annas were to be levied, the produce being inferior in quality. Half a rupee consumption duty on tobacco imported into the Division. A bharti duty of one rupee per maund was levied on silk manufactured in the Division, both the transit and consumption duties being abolished. The silk of the other Divisions was allowed to pass free from duty. But if such silk was retained in the Division beyond a limited time, it was subject to duty.

The total annual value of the remissions made in this Division under the head of sáyar was Rs. 1,85,907-0-5.

Judicial System.—When the Governor-General of India resolved that the territories of the Rája of Mysore should be governed until further orders by a sole Commissioner and four European Super-

intendents in the Districts, the system and establishments for the administration of justice which then existed being considered inadequate to the wants of the country, an order for the establishment of Courts of Justice, with a draft of Rules for their guidance, was issued on the 27th of October 1834. These Rules may be said to form the basis of the system of Judicial administration existing up to 1854.

The Courts established during this period for the administration of civil and criminal justice within the Mysore territory may be classed under six heads or grades.

Taluq or Amils' Courts... ...	85	Superintendents' Courts ...	4
Town Munsiffs' Courts	2	Huzar Adalat	1
Principal Sadar Munsiffs' Courts	8	Court of the Commissioner ...	1

Of courts of original jurisdiction there were two classes :—1st, the Amils' Courts ; 2nd, the Town Munsiffs'.

The Amils had power to decide without record all claims not exceeding Rs. 20 ; with a record of proceedings, suits not in excess of Rs. 100 ; and, when assisted by a Pancháyat, all suits not exceeding Rs. 500. An appeal might be filed in the Sadar Munsiffs' Court in the second and third description, but not in the first, unless when corruption or gross partiality was alleged, or when the claim involved landed property, under which circumstances the higher Courts, and eventually the Commissioner, might be appealed to.

The Mysore Town Munsiff had nearly identical power with that of an Amil in all suits regarding real or personal property, which was connected with, or may have originated within the limits of, the town of Mysore. The Bangalore Town Munsiff, in addition to the powers of an Amildar, had authority to decide, with a record of proceedings, all suits for real property not exceeding Rs. 500, and for personal property not exceeding Rs. 1,000, and an appeal from his decisions lay direct to the Superintendent of the Division, whereas in the case of the two former the appeal lay only to the Sadar Munsiff. A written decision had to be given in all cases, whether a record of proceedings had been kept or not.

Of courts of original jurisdiction and of appeal, there may be said to have been two classes :—1st, the Principal Sadar Munsiffs' Courts ; and 2nd, the Courts of the European Superintendents.

The Principal Sadar Munsiffs, of whom there were two in each Division, decided all suits in appeal from the Amils, their decision in all such appeals being final, unless in cases of landed property, or under circumstances of corruption or gross partiality ; they also decided all original suits for real property above Rs. 100 and not exceeding Rs. 1,000, and for personal property above Rs. 100 and not exceeding Rs. 5,000.

All appeals from their decisions lay to the Superintendents of Divisions, or to the Huzur Adalat, at the option of the suitor. The Munsiffs kept a records of all proceedings, and sealed, signed, and delivered, to both

plaintiff and defendant in a suit, copies of the decree issued in the case. The Sadar Munsiffs had, moreover, authority to try all cases referred to them by the Superintendents of their respective Divisions.

The Superintendents had authority to investigate all appeals whatsoever from the lower courts of their Divisions, as also all original suits involving real property in value above Rs. 1,000, or personal property above Rs. 5,000. Under the Commissioner's special instructions, the Superintendents exercised control over the Munsiffs and all subordinate judicial authorities within the limits of their Divisions.

Of *Courts of Appeal*, there were two: 1st, the Huzúr Adálat, a Native Court attached to the Commissioner's Office, and having three judges; 2nd, the Commissioner's Court.

The Huzúr Adálat had power to take cognizance of, and to pass a decision upon, all appeals from the subordinate Native Courts. This court was not assisted by a pancháyat unless specially ordered by the Commissioner to convene one, but the judges might be assembled by the Commissioner and employed by him as his assessors whenever he deemed such a course advisable. This court was not one of original jurisdiction, excepting when suits were specially referred to it for investigation by the Commissioner.

The Commissioner received appeals from the decisions of the Superintendents and of the Huzúr Adálat, either in appeal direct, or by simple petition through the Firiyad Department of his office. No original suits were filed in the Commissioner's Court; it was, however, optional with him to take notice, in any way he deemed fit, of any representation whatever laid before him.

The subordinate Revenue officers, the Superintendents of Divisions, and finally the Commissioner, decided all disputes or suits connected with Sarkar or mirási lands or other revenue matters. The Amils, principal Munsiffs, and Superintendents, were authorized to take cognizance of all suits regarding landed property when the land lay within the limits of their prescribed taluqs, Districts and Divisions, and of all other transactions whatsoever when the defendant permanently resided, or the cause of action originally arose, within the said limits. No suits regarding personal property were admitted when it was proved that no effort for its recovery had been made for a period of sixteen years.

On a plaintiff presenting himself at one of the Courts of original jurisdiction for the purpose of filing a suit, before a writ summoning the defendant was issued, the plaintiff underwent a *vivâ voce* examination in open court. If the judge, after hearing his statements, and inspecting his documents, was of opinion that the claim was tenable, the suit was at once filed, and numbered; but, on the contrary, should the claim appear to the judge to be vexatious or unfounded, he refused to grant a writ until the plaintiff had deposited a sum sufficient to cover the probable amount of the

costs of the suit (including the fee), or until he gave good and substantial security for the same. The plaintiff was permitted the option of undergoing the examination or of making the deposit. Should the judge refuse to file the suit, he must endorse his reasons for so doing on the back of the rejected plaint.

The suitor with his *plaint* was obliged to state the number of his witnesses and the nature of his documentary evidence ; and the defendant on being summoned was obliged to do the same in his *answer*. The *reply* and *rejoinder* were then filed, when the judge further questioned both parties, and then proceeded to receive and record the evidence on both sides. The judge was authorized to call for all such witnesses and documents in the course of the inquiry as he deemed necessary to a right understanding of the matter at issue, but should additional evidence be called for by either plaintiff or defendant during the progress of the suit, the judge did not comply with the requisition until he had ascertained by a *vivâ voce* examination that their attendance was absolutely necessary. Should the inquiry be intricate or connected with landed property, the Amil, Munsiff, or Superintendent, might at his option convene a pancháyat, which had, under such circumstances, the power to adopt the same measures as the convening authority, with a view to arriving at an equitable decision. Upon the completion of the pancháyat's mahazar, the judge drew up a *decree*, in which he recapitulated concisely the original statements, the evidence on both sides, documentary and oral, the opinion of the pancháyat (if one was convened), his reasons for adopting or differing from the same, and lastly his own opinion or decision, with the arguments upon which it was based. The opinion of the Mufti or Pandit of the Court was also mentioned, should the judge have considered it advisable to call for it in the course of the inquiry.

Should the losing party in a suit be disposed to file an appeal in the next superior court, the following conditions must be complied with :—

He must, within thirty days from the date on which he had the decree of the lower court handed to him, forward to the judge of that court an *appeal arzi* for transmission to the higher court, and he must procure an endorsement on it by the judge to the effect that all costs, fees and fines levied in his court had been duly paid, and that substantial and reliable security for the amount decreed had also been lodged in his court. Non-compliance with any of these conditions was held as a valid reason for refusing to forward an appeal, or for its rejection in the appeal court, should the appeal arzi be forwarded to the superior court direct. Special instructions from the Commissioner alone warranted any deviation from this rule. Should the grounds of appeal be corruption or gross partiality, proof of the truth of the charges must be adduced previous to any re-investigation of the case.

The appellant having complied with the established stipulations, and his appeal having been filed in the superior court, the proceedings of the original court were sent for, on receipt of which the respondent was called

upon for an answer (no reply or rejoinder were requisite in the appeal court), and on receipt of this document, the proceedings of the original court were carefully re-examined, and should it be deemed necessary for the further elucidation of the matter to call for additional documentary or oral evidence, the appeal court's power in this respect was unlimited. All available evidence having in this manner been obtained, an *appeal decree* was drawn up, confirming or reversing the decision of the lower court, as the case might be.

Unless under circumstances of corruption, gross partiality, or extreme peculiarity, an appeal decision in cases of personal property was final. In cases involving landed property, however, notwithstanding a concurrent opinion on the part of two courts, a special or extra special appeal, the former to the Superintendent or the Adálat, and the latter to the Commissioner, were admissible.

In all the subordinate Native Courts, there were summon peons, who were employed in summoning defendants and witnesses, and who received two annas batta per diem during the time they were engaged on this duty. Witnesses received, according to their rank and circumstances, an allowance varying from one anna to one rupee daily, besides travelling batta at the same rate when the distance exceeded ten miles. Should the person to be summoned reside beyond the limits of the jurisdiction of the Amil, Munsiff, or Superintendent, an application accompanied by a summons was forwarded from each or any of these authorities respectively to his co-ordinate authority within whose jurisdiction the person resided, requesting him to serve the summons and direct the attendance of the individual in question. Should the required individual belong to the household of the Rája, the application for his attendance was forwarded through the Commissioner; and should he be a person of rank, or Government servant, he was summoned by the Superintendent on his own account, or through him on that of the Amil, or Munsiff, but not by the two latter authorities themselves. When witnesses resided at a distance, to save them trouble and expense, lists of interrogatories were occasionally forwarded from one court to another, and to zillah courts in the Company's country under Regulation VII of 1841. Should the list be handed in by either plaintiff or defendant, it must meet the approval of the judge prior to being forwarded, and he was at liberty to add any further questions he considered it advisable to ask: the list furnished by the one party being shown to the other in order that he might insert such cross questions as appeared reasonable and proper. The answers were invariably given and recorded in open court.

The money for the adjustment of expenditure on the above different

accounts was deposited in the first instance by the party requiring the outlay, the whole sum paid for such purposes by the gaining party being subsequently charged to whoever lost the suit ; the amount expended in this way being specified in the decree under the head of costs. In pauper suits, the amount of cost was adjusted by Government.

A list of as large a number as possible of the most respectable and intelligent inhabitants competent to perform the duties of pancháyatdars, was kept in the Court of every Superintendent, Munsiff, and Amil. When the preliminary papers had been filed in a suit, from the recorded list of pancháyatdars five persons next in rotation were (if a pancháyat was necessary) nominated by the Court. No omission or passing over was permitted, unless in cases where the next on the list was sick, or engaged on another trial. The plaintiff or defendant might challenge three out of the five persons named. The merits of this challenge were summarily decided upon by the head of the court, and his decision was final.[1] No pancháyatdar could be changed after the commencement of the investigation, unless in a case of urgent necessity or sickness. Under such circumstances, four members were permitted to continue the inquiry, an account of what had passed being given to the absent member when he returned. Should only three members remain to prosecute the inquiry, if it was nearly ended, and all three were unanimous in opinion, it was optional with the head of the court to direct them to conclude the matter or to take two new members.

Every pancháyat sat in open court, and free access to hear the proceedings was permitted. No person of bad character, or who was only a court hanger-on—*i.e.*, not a permanent resident in the neighbourhood—was permitted to sit on any pancháyat whatever. Pancháyatdars were permitted to retire to a separate room to consult upon and draw up their mahazar. Undue influence to induce them to decide against their judgment was most strictly prohibited, although the head of the court, on receipt of the mahazar, was authorized to point out any discrepancy which he perceived in it, and was at liberty also to suggest, if requisite, that the pancháyatdars should more fully explain the reasons of their decisions, or reconsider their opinion. It was optional with the pancháyatdars to adopt or reject these suggestions, and in the latter case it was necessary that the head of the court

[1] Should the plaintiff or defendant be a foreigner, he was permitted to place a list of his own country people before the court, out of which the judge chose by lot two additional persons to sit on the inquiry. In such cases the pancháyat was composed of seven members.

should in his decree mention his reasons for differing from the pancháyat in opinion.

Unless in cases of glaring injustice, gross partiality, or corruption, it was not deemed advisable to set aside the opinion of the majority of a pancháyat; nor in any instance was the opinion of the minority to form the basis of a decree. A new trial might be ordered, but only under extraordinary circumstances.

Professional *vakíls* were not recognized by the Courts, and were otherwise discouraged. In cases of necessity, a plaintiff or defendant was at liberty to appoint some other person to conduct his suit; but such individual should if possible be a relative or friend, as the employment of persons who gained a livelihood solely by instituting and carrying on suits for others in the courts was discouraged, their services being deemed both prejudicial and superfluous under a system of simple procedure. Should the head of a court be aware of any valid objections to the employment of an individual deputed to conduct a suit, he was at liberty to prevent him from pleading, and should any person employed as a vakíl behave in a tricky or dishonest manner, he was prohibited from ever again practising in the courts of this Territory. Foreigners were as a matter of necessity permitted to employ strangers as vakíls.

The declaration on oath was abolished in March 1840, and a circular order was issued by the Commissioner substituting in lieu of it the solemn affirmation authorized by the Government of India in Act V of 1840.

In the matter of *fees* and *fines*, several alterations took place since the first establishment of the Commission, and there was scarcely any subject connected with the civil procedure of the country which had given rise to the same amount of discussion. Until 1834 the institution fee was enforced in all suits, and as a natural result they were not very numerous, for only those who were well able to pay, or who by the goodness of their cause were able to raise the money, applied to the courts; it was found, however, that it prevented false litigation or the influx of professional vakíls. But in consequence of the authorities having come to look upon it as a tax upon justice, it was finally abolished in 1834.

For some time, apparently, the abolition of the institution fee did not cause any very great difference in the number of suits; but as soon as its discontinuance became generally known, the courts of justice became crowded with needy impostors, who, by inciting the people to litigate, and by the institution of false, vexatious and exaggerated suits, carried on the most systematic extortion, and so swelled the files of the

courts that no increase of either the Judicial establishments or of activity on the part of the judges could keep pace with the demand, or clear the files, which in December 1837 showed a balance of 8,000 suits still pending; and, as it appeared that out of those decided at that time in the courts 45 per cent. of the claimants were non-suited, it became necessary to provide some check to this system of vexatious and unfounded litigation, and also to relieve, if possible, this great and useless pressure upon the valuable time of the judges. The consequence was, that in 1839 a circular was issued ordering the realization of a fee, equal in amount to the former institution fee, in all suits which were ascertained to be vexatious or unfounded. But this arrangement not being found sufficient, in March 1841 another set of rules was issued, which may be said to form the existing system at the close of the period under review, with but very slight modifications, and which system, as the non-suits formed then only a small percentage, was looked upon as working well.

In all suits, a fee leviable at its termination became an incidental expense to the bringing of an action. This fee amounted to one anna in the rupee on sums not exceeding Rs. 800, and on sums above that amount, in a certain fixed proportion. This fee was leviable on all sums claimed in excess of the amount justly due, and as a general rule in all cases of non-suit, or where the defendant was cast in the full amount. In cases where the parties had applied to the courts more with the view of ascertaining their respective rights than from a desire to litigate, the fee was remitted by the judge. An appeal court had power, on seeing grounds for the same, to remit the fees imposed in the lower courts. A fine in addition, equal to the fee in amount, was leviable in all suits which were found to be false, vexatious, or unfounded. The fee was leviable by process of execution, immediately upon the judgment being passed. Should the property of the party liable not be sufficient to realize the amount, it was held as a debt due by him to the Government, and he was not permitted to file another suit in any court until the amount was adjusted; but in the case of a fine, imprisonment not exceeding six months was given in cases of default of payment.

At the close of a suit, should the defendant fail to attend for the purpose of receiving the decree, a notice for his attendance within ten days was forwarded to the Amildar, and if he was not to be found, the notice was affixed to the outside of his door. After a month had elapsed from the date of the notice, should the defendant not appear, the decree was carried into effect in the usual manner. All decrees against individuals who lived within the jurisdictions of the Sadar

Munsiffs were carried into effect by the Amildars under their orders; the Amildars being invariably executive officers, excepting in the towns of Bangalore and Mysore, where the Town Munsiffs had executive powers. Sadar Munsiffs, when the defendant's property was beyond the limits of their jurisdiction, forwarded the application for execution of decree through the Superintendent. No decree was carried into effect unless a special application to that effect was made by plaintiff.

When it became necessary to distrain the property of any individual, the Amil, on being applied to, forwarded a statement of the defendant's property. This statement must be duly attested by two respectable merchants of the place. The Amil was held responsible for its accuracy, and it must contain mention of any Sarkar balances due by the individual; and then, should the amount not be paid within a certain time specified, the property, on a requisition from the court, was sold by public auction. The Government claim having first been made good, the balance was appropriated to the adjustment of the decree. The only articles of property exempt from distraint were the tools and implements of the individual's trade or calling, his wearing apparel, his drinking lotah, and, if a ryot, grain for his subsistence until the next season. Concealment of property rendered an individual liable to short imprisonment and the property to seizure. Should it be proved in the course of an inquiry that the defendant was disposing of, or making away with, his property clandestinely, or that he was about to remove himself beyond the jurisdiction of the court, the judge could oblige him to give security for the amount claimed, or, if he refused, place him in close custody until it was given. This course of proceeding, however, was adopted only on most reliable proof. Should the defendant reside within the limits of the Company's Territory, the decree was carried into execution under the provisions of Act XXXIII of 1852.

All parties mutually consenting to adjust any differences (unconnected with inámti or mirási privileges), were permitted, as in ancient times, to do so through the arbitration of an *ápas pancháyat* of not less than five members; each party nominated two members, these four then jointly appointed their own president. A muchchalika binding themselves to abide by the decision of the pancháyat was registered by the parties in the Amildar's cutcherry. The pancháyatdars were authorized to summon witnesses, &c., and their mahazar, on an application through the Amil to the Superintendent, was looked upon by the latter in the light of a legal decree and was acted upon accordingly. An ápas pancháyat was not empowered to levy fines, fees, or any penalty.

Razinámas, or bonds of mutual compact or agreement between

parties, were, when properly attested, held to be binding and valid documents in all the courts of the Territory, and it was only under circumstances of fraud or collusion that they were ever rejected.

Should a defendant fail to appear within the prescribed time, and after due notice had been given him should be unable to assign satisfactory reasons for his absence, an *ex parte* decree was passed by the court. *Ex parte* decrees were admitted by an appellate court within the prescribed period, on the appellant proving to the satisfaction of that court that his default or absence from the lower court was unavoidable, and not wilful; and should such proof be accepted, the proceedings were returned to the lower court for re-investigation; should it be rejected, a fine was levied not exceeding double the amount of fee imposed in the lower court.

With the exception of orders limiting the rate of interest which a decree could award to 12 per cent. in money dealings, and to 24 per cent. in grain transactions, and also directing that a total of interest greater in amount than the original loan should not under any circumstances be awarded, interest was a matter which had, to a great extent, been left to self-adjustment in the Mysore Territory, until circumstances induced the Commissioner to order,—that in all future transactions in which the rate of interest was not distinctly laid down, the courts were not to award a higher rate than 6 per cent.; but that, where the rate of interest was expressly noted in the bond, the judge was to draw up his award in conformity with the agreement.

The language of all judicial proceedings and decisions was Canarese, but, should the vernacular language of any officer who was head of a court be other than Canarese, he was bound to write his decision, or any particular points regarding which he had to call for proof, in his own language, and these papers having been translated into Canarese, a copy of both the original and the translation were placed on record. Should any head of a court, however, be sufficiently conversant with Canarese to use it instead of his own language he was at liberty to do so.

In the case of a minor, the amount to which he was heir was placed in deposit in the treasury, the greater portion being, as a general rule, invested in Company's paper until such time as he attained his majority, which is fixed at 18 years of age in Mysore; and during the interim he was placed under a respectable relation or some trustworthy person, and a suitable allowance made out of his property for his education and subsistence. Should there be a large amount due to the minor's estate, a curator was appointed, whose only duty it was to recover the several sums due and remit them to the treasury. He received on all sums realized a commission of 5 per cent. In the case

of insolvents who had a large amount of debts to pay and receive, the usual course was to assemble a pancháyat in the Commissioner's Court, which, under his special instructions, investigated the affairs of the estate, and submitted a statement and opinion on the matter. In some instances, the Adálat settled such matters under instructions from the Commissioner. In the case of intestates also, a pancháyat was sometimes convened. Should there be no heir, and money have to be paid and received, a curator was appointed; should there be no heir, and no creditors, the amount of which the intestate died actually possessed, was transferred to the Sivayi Jama; and should there be an heir, as soon as he had proved his right to the satisfaction of the Commissioner, the property was transferred to him; if he was a minor, the usual course was pursued.

No individual of the Barr and Sawar departments, which were under the control of the Military Assistant, could be summoned to attend a Civil Court unless through that officer, nor could any decree against them be executed without a previous intimation to him.

The Police Superintendent had power to adjudicate in all suits originating within the limits of the Cantonment of Bangalore which did not exceed pagodas 500 or rupees 1,750. His decisions were summary, and he was not obliged to keep a record of proceedings unless in cases of landed or house property. He might assemble a pancháyat in any case in which he deemed it advisable. An appeal from his decision lay direct to the Commissioner in cases of landed property, but he was not required to transmit appeals in suits regarding personal property. The Commissioner could, however, take cognizance of any case whatever in which he deemed it just and right to interfere.

Suits against His Highness the Rája were filed in the Adálat Court, under the immediate sanction of the Commissioner.

It was required that in all transactions the bonds, bills of sale, agreements, transfers, deeds, and other documents, should be executed on stamped paper of a fixed value. Any unstamped document presented in a suit was received and filed, but only on payment of a sum equal to ten times the amount of stamp duty originally leviable upon it. No suits for the recovery of vakíl fees were permitted to be filed in the Mysore courts.

Criminal Justice.—The Courts for the administration of Civil and Criminal justice were identical. The Amildar was head of the police in his taluq, and to assist him in revenue and magisterial business he had under his orders a Peshkar, a Killedar, Shekdars, Hoblidars, Dafadars and Kandachar peons; of these the Killedar and Hoblidar only were exclusively police officers.

In cases of personal wrong, or for petty offences, the Amildar had power to confine an individual in the stocks for not more than 12 hours, or to confine a person not in the stocks or in irons, for not more than 14 days. Unless in cases of open violence, however, the Amildar was not authorized to interfere except at the instance of a complaint. The Amildar could not keep any person in confinement pending investigation for a longer period than seven days without a reference to the Superintendent. The Shekdars and Hoblidars had authority to confine, for not more than 24 hours, any persons suspected of heinous crimes, such as murder, burglary, gang, torch, or highway robberies; within that time they must make such inquiries as would enable them to release the parties or report to the Amildar for orders, and they were held strictly responsible for any abuse of this authority. Should a longer detention appear necessary, they must either send the prisoner and witnesses to the Amildar, or forward to that officer a statement of the circumstances for his orders. All offences or unusual occurrences were regularly reported by the talvars and totis of villages, as also by the Killedars and Kandachar officers to the Amildar, and by him to the Superintendent. It was the peculiar duty of the Killedar, and, under his orders, of the subordinate police officers, to search for information, and place it before the pancháyat in all taluq inquiries.

The Principal Sadar Munsiffs had power to punish to the extent of two years' imprisonment, with or without hard labour, in all cases referred to them for investigation and decision by the Superintendent, but they had no original jurisdiction in criminal matters. The Superintendent had power to sentence to seven years' imprisonment, with or without hard labour in irons; he reviewed all cases inquired into by Amildars or decided by Munsiffs, and commuted or confirmed the decisions of the latter. In cases of murder, gang, or torch robbery, or other offences which involved capital punishment, or a term of imprisonment in excess of his powers, the Superintendent referred the matter for the decision of the Commissioner. The Commissioner had power to pass sentence of death, transportation for life, or imprisonment with or without hard labour, on parties convicted of murder, or of gang or torch robbery, when the latter crimes were attended with torture or other aggravated circumstances, or when from the frequent occurrence of such crimes he considered an example advisable. All sentences of death required to be submitted to the Supreme Government for confirmation. In criminal matters, the Adálat Court had no jurisdiction, unless when cases were referred to it for investigation by the Commissioner.

Pancháyats for civil and criminal investigations were summoned in

the same manner, and a prisoner had the same permission to challenge as a plaintiff or defendant. There was this difference, however, that no criminal investigation was permitted to be carried on without a pancháyat, whereas in civil cases it was optional with the head of the court to convene one or not as he thought desirable.

The Police Superintendent of the Bangalore Cantonment had authority to punish, with or without hard labour, to the extent of seven years, and to the extent of Rs. 50 by fine. The Commissioner, however, had power to commute or remit any punishment awarded by that officer. In cases involving a punishment in excess of seven years' imprisonment, the Police Superintendent referred the case to the Commissioner.

Magistrates, and district police officers under the orders of the Magistrate, were permitted to apprehend and place in confinement persons of notoriously bad character, or whose habits of life were suspicious, until they could give good and reliable security for their future good conduct. To prevent undue oppression on the part of subordinate police authorities under the pretence of carrying out the provisions of this order, every individual apprehended under its authority was forwarded to the Superintendent or his Assistant for examination, and could only be confined or punished under the express orders of the former, and no individual taken up under the provisions of this regulation could be confined for a longer period than three years.

Villagers were authorized and encouraged to use arms of every description in defending themselves and their property whenever their village was attacked by either gang or torch robbers, and valuable bangles were bestowed by the Government on those who distinguished themselves on those occasions.

The Naiks of the Lambanies, and the head men of the Kormars and Waddars—these three castes, but more particularly the two former, being looked upon as the professional thieves of this part of India—were obliged to furnish good and reliable security for the good conduct of their *tándas* in the case of the first, and of those under their immediate control in the case of the others. The different classes were considered to be permanently under the surveillance of the district police, and all their movements or changes of abode were watched, noted and reported. A register showing the name and dwelling-place of each individual of the different tribes was kept up in each taluq cutcherry, copies of which were forwarded regularly to the Superintendents of the Divisions.

Transition Period, 1856–1862.

The period of the Governor-General Lord Dalhousie's visit to Mysore, or the year 1855–6, may be considered to mark the termination of the exclusively patriarchal and non-regulation system of government, which, under the statesmanlike control of Sir Mark Cubbon, and the exertions of his select body of able administrative officers, had achieved results beyond all praise.

The administration up to this period, as set forth in the reports drawn up at the time, from which the foregoing accounts have been compiled, was reviewed by Lord Dalhousie in the following terms, under date Fort William, the 7th February 1856:—

"The Governor-General in Council has read with attention, and with very great interest, the papers submitted. They present a record of administration highly honourable to the British name, and reflecting the utmost credit upon the exertions of the valuable body of officers by whom the great results shown therein have been accomplished.

"In the past autumn the Governor-General had the opportunity of witnessing some portion of these results with his own eyes, during his journey from the Neilgherries through Mysore to Madras. His journey was necessarily a hasty one. Even the cursory examination of the country, which alone was practicable during the course of a week's visit, enables him to bear testimony to the extent to which works of public improvement have been carried in Mysore, and to the favourable contrast which the visible condition of that Territory and of its people presents to the usual condition of the Territory of a Native Prince, and even to the state of Districts of our own which may sometimes be seen.

"During the period of twenty-five years which has elapsed since Mysore came under the administration of British Officers, every department has felt the hand of reform. An enormous number of distinct taxes have been abolished, relieving the people in direct payment to the extent of 10¾ lakhs of rupees a year, and doubtless the indirect relief given by this measure has exceeded even the direct relief. Excepting a low tax upon coffee (which is raised on public land free of rent or land-tax), no new tax appears to have been imposed, and no old tax appears to have been increased. Nevertheless the public revenue has risen from forty-four to eighty-two lakhs of rupees per annum.

"In the administration of Civil and Criminal justice, vast improvements have been accomplished: regularity, order and purity have been introduced, where, under native rule, caprice, uncertainty and corruption prevailed; substantial justice is promptly dispensed, and the people themselves have been taught to aid in this branch of the administration, by means of a system of Pancháyats, which is in full and efficient operation. And in the department of Police, the administration of British Officers has been eminently successful. In short, the system of administration which has

been established, whether in the Fiscal or Judicial department, although it may be, and no doubt is, capable of material improvement, is infinitely superior to that which it superseded : and has, within itself, the elements of constant progress."

From that time, the State debts having now been extinguished, commenced a period of transition, which continued till 1862, when Mr. Bowring, on assuming the government, completed the introduction into every department of the more or less regulation system which has since been developed. From 1856-7 also began the publication of Annual Administration Reports.

The earlier changes introduced during this period did not result from a new policy adopted with regard to the State of Mysore individually, or from the personal views of Lord Dalhousie. They operated equally in all parts of India and arose out of the renewal of the East India Company's Charter in 1854. The preamble of the celebrated educational despatch of that year from the Court of Directors, which runs as follows, testifies to this :—

"It appears to us that the present time, when by an Act of the Imperial Legislature the responsible trust of the Government of India has again been placed in our hands, is peculiarly suitable for the review of the progress which has already been made, the supply of existing deficiencies, and the adoption of such improvements as may be best calculated to secure the ultimate benefit of the people committed to our charge."

One of the first changes was the appointment, in 1856, of a Judicial Commissioner, to relieve the Commissioner of a branch of work which had grown to dimensions beyond his power to discharge in addition to the various other duties devolving upon the Head of the Administration. The formation of a regular Department for Public Works, and the institution of a Department for Education, both date from the same period. In 1858, a Principal Sadar Munsiff's Court was established in the Cantonment of Bangalore, to relieve the Superintendent of Police of the trial of civil suits. In 1860 the head-quarter establishments were revised, and additional European Assistants appointed. The Bangalore Police force was reorganized in 1861, and the Head Kotwal made Sar Amin, with magisterial powers equal to those of an Amildar. Of other measures, steps were taken for the Conservancy of Forests, and for the planting of topes and avenues ; Botanical Gardens were formed in the old Lal Bagh,[1] and a Government Press was established.

[1] An Agri-Horticultural Society was established at Bangalore in 1839, under the auspices of the Commissioner, who made over to it the Lal Bagh, and afforded other assistance in the way of convict labour, etc. In all other respects the Society was

A measure of greater importance was the revision of the Mohatarfa in 1860. This was levied in a manner analogous to that of the Sáyar and Halat, which had been dealt with during a series of years as previously related. It consisted of a vast number of items, and was closely interwoven with the Chillar Báb (miscellaneous items), which formerly included many hundreds of trifling, partial, oppressive, and in some instances indecent taxes. Year by year some of the most oppressive and offensive had been struck out, until somewhat less than one hundred remained. Even these included taxes so partial that occasionally only one individual in a village was found to be liable to the cess. Indeed so complicated was the whole system, that sometimes it was scarcely capable of explanation by those who were supposed to be thoroughly initiated.

The Chillar Báb being completely swept away, the Mohatarfa was modified. The house, shop, loom, mill and plough taxes, which formed the principal items, were taken as the basis for the revision. The discrepancies which obliged a man with a retail shop to pay thirty or forty rupees annually, while his neighbour in the possession of a large store paid only four annas; and the system under which ryots of the same village paid sometimes one rupee and a half, and sometimes half an anna, on their ploughs, was finally and completely abolished. All houses, shops, looms and mills were registered, and assessed under four classes, with distinct rates for large and small towns and large and small villages, the rates ranging from Rs. 60 a year on the largest mercantile store in Bangalore or Mysore, to half a rupee on a village hut or loom. All cultivating ryots were exempted from mohatarfa, unless they kept a shop, loom or mill besides, but they paid a plough-tax ranging from six to three annas, and the amount raised under this head was formed into a Local Fund, devoted to the formation and repairs of cross roads.

The subsequent radical changes introduced in 1862, and the grounds for them, are thus described in the Annual Report for that year. In pursuance of the principle that the elements of a Native Administration should be maintained in their integrity, and no radical changes permitted in the system inaugurated on our assumption of the government of the country, and carried on with success for nearly

supported by private contributions; but constant changes among subscribers led to its dissolution in 1842, and the garden was then restored to the Commissioner. In 1856, Dr. Cleghorn visited Bangalore with the object of conferring regarding the re-establishment of a Horticultural Garden, and a professional Superintendent was obtained from the Royal Botanical Gardens at Kew. This arrangement still continues, and the Lal Bagh has become not only a most ornamental but from a botanical point of view one of the most valuable gardens in India.

thirty years, every change in the Mysore Administration which seemed to carry with it the spirit of innovation, had hitherto been introduced tentatively, and with extreme care, the object being always to carry the people with the Government in any reforms. The European officers were few in number, great latitude of authority being exercised by the Superintendents of Divisions, aided by one, or, at the most, two Assistants, without any recognized or defined powers, and the check over the details of administration being therefore necessarily incomplete.

Under this system the true interests of the Province, as is well known, materially advanced, but as years passed on, and population and revenue increased, serious inconvenience arose, and it became evident that the executive officers, already overburdened with multifarious duties, could not undertake the additional labour which would be entailed on them by the necessity of a revision of the working of the different departments, and the introduction of a more regular system in every branch of the administration. In fact, it became apparent that a Territory yielding an annual revenue of a crore of rupees, could not be efficiently administered with the same agency as that which was instituted when the revenue was not much more than one-half, and hence the year 1862–3 was specially marked by a gradual reorganization, and an extension, of the agency for conducting the administration.

The former establishment of the Commissionership of Mysore consisted of:—The Commissioner's staff at Head-quarters; four Superintendents, one posted to each of the Divisions of the Mysore Territory; three Assistants and ten Junior Assistants to the Superintendents of Divisions; the Court of the Huzúr Adálat (consisting of three Judges), originally intended as a superior court for the adjudication of cases in which either the Maharája of Mysore personally or his immediate retainers were concerned, but of late years disposing only of appeals from the Principal Sadar Munsiffs and Munsiffs, of whom there were ten in the different districts.

The Commission was now reorganized on the following plan:—Mysore was distributed into three Divisions, subdivided into eight Districts. A Department of Audit and Account was newly instituted at Headquarters. The Court of Huzúr Adálat and the Munsiffs' Courts were abolished; a body of Native Assistants, analogous to the class of Extra Assistants in Non-Regulation Provinces, was introduced, and a Small Cause Court established in the Cantonment of Bangalore. No material changes took place in the designation of the Officers employed in the revised Commission, the names of

Commissioner of Mysore, and Superintendents of Divisions being retained, while the subordinates of the latter officers were entitled Deputy Superintendents of Districts, or Assistants, as the case might be.

The former vast Divisions, averaging 7,000 square miles, were thus broken up into two, each with a Supervising Officer and an Assistant, European or Native, according to circumstances, three such Districts being placed under the superintendence of the Divisional officer in two Divisions, and two in the third. The orders of Government conferred upon the Superintendents the civil and criminal powers exercised by a Commissioner and Superintendent in Non-Regulation Provinces. The Deputy Superintendents were empowered to adjudicate civil suits up to any amount, appeals lying to the courts of the Superintendents, and in criminal matters were vested with the full powers of a Magistrate, under the Code of Criminal Procedure. The powers of the Assistants, European and Native, were dependent on the standard of examination passed by them, under rules on the subject prescribed by Government.

The necessary arrangements for giving effect to these orders having been made, on the 25th November a proclamation was issued, notifying the future executive Divisions of the Province, with the Districts and Taluqs attached to each as shown below, and intimating the abolition of the Huzúr Adálat Court, as also those of the respective Principal Sadar Munsiffs and Munsiffs.

Division.	District.	No. of Taluqs.
Nandidroog	Bangalore	13
	Kolar	11
	Tumkur	9
Ashtagram	Mysore	13
	Hassan	11
Nagar	Shimoga	10
	Kadur	8
	Chitaldroog	10

The territorial transfers, and changes of jurisdiction involved in them, coupled with the revision of subordinate establishments, the introduction of the Penal and Criminal Procedure Codes, and the modern financial system of Budget and Account, necessarily affected every public department. In the Judicial Department, not only were the number, constitution, and jurisdiction of the Courts altered, the traditionary practice by which their operations were in a great measure

regulated, was abrogated or materially affected by the introduction of the Codes, and the new system necessitated an immediate and complete change in all judicial forms and returns.

Justice.—The number of Courts for the transaction of judical business in Mysore amounted previously to 103, and were as follows:—Judicial Commissioner, 1; Huzúr Adálat, 1; Superintendents, aided by their Assistants, 4; Principal Sadar Munsiffs, 6; District Munsiffs, 4; Town Munsiffs, 2; Sar-Amins, 2; and Amildars, 83. The criminal courts consisted of the above, with the addition of the court of the Superintendent of Police, Bangalore.

The courts of original civil jurisdiction were presided over by officers too underpaid to secure tolerable integrity. The bulk of the appeals lay to the Munsiffs' Courts, and ultimately to that of the Huzúr Adálat, the efficiency of which depended on the character of the judges for the time being. The procedure was cumbrous and dilatory, much devolving on unchecked petty subordinates, and the judicial officers were entirely untrained. In criminal matters, great irregularity prevailed in all preliminary inquiries, and offences were so vaguely defined that no conclusions could be formed from the returns, of the nature of offence committed. In both departments, officers of all grades were hampered by the pancháyat system, under which the finding of too often a few illiterate or even corrupt individuals formed the basis of the court's decision. The pressure of their multifarious duties rarely admitted of the European officers trying even important cases themselves, and this, added to the circumstances above mentioned, rendered their control over the proceedings of the courts very superficial.

Under the revised constitution of the Mysore Administration, the following officers held courts, either of original or appellate jurisdiction, in civil and criminal matters:—One Judicial Commissioner; three Superintendents of Divisions; eight Deputy Superintendents of Districts; two Judges of the Small Cause Court, one European and one Native; ten Assistant Superintendents, European, of whom one was employed as Superintendent of Police in the Bangalore Cantonment and three were probationary; fifteen Assistant Superintendents, Native; and eighty-six Amildars of taluqs. Of the above, however, the Judges of the Small Cause Court took no part in the criminal, and the Superintendent of Police, Bangalore Cantonment, took no part in the civil work of the Province.

The pay of the Amildars was raised, by which the services of more efficient and trustworthy men were obtained. The Munsiffs and Judges of the Huzúr Adálat were represented by the class of Native Assistants, on liberal and progressive salaries, and whose promotion depended on departmental examination tests. A complete but simple code of rules for the guidance of Amildars in the decision of civil suits, compiled partly from

the Panjab rules and partly from the provisions of Act VIII of 1859, was drawn up, carefully translated into Canarese, and printed for distribution to the Taluq Courts. The Penal Code and Code of Criminal Procedure defined offences, gave the measure of punishment, and regulated the procedure, without entirely excluding the co-operation of juries. The reduction in the size of Districts admitted of the European officers assuming their legitimate duties of trying cases themselves as Magistrates and Judges, and of their exercising a strict control over the proceedings of the subordinate courts. The system of registers and returns was revised, so as to ensure greater dispatch in the disposal of judicial business of every description.

The system of fees was abolished from the 1st of November 1862, and with it also ceased, as a rule, its concomitant system of imposing fines under certain circumstances in civil suits. In lieu of the former system, entailing an ever-increasing balance of fees, which, imposed as they were after the decision of suits both by the original and appellate courts, were found very difficult to realize, and proved not unfrequently perfectly irrecoverable, it was under the revised Stamp Rules made incumbent upon litigants, except in the case of pauper suitors, to pay, as in Her Majesty's Territories, an institution fee in the shape of a stamp paper, on which the plaint was written, and which was of value corresponding with the sum claimed.

The Superintendents of Divisions having been vested with the powers of Sessions Judges under the provisions of the Penal Code and Code of Criminal Procedure, the Judicial Commissioner was vested with the powers of the Sadar Court. Sessions cases in which a sentence of death was passed on the prisoners, were forwarded for confirmation to his Court, which was one of final reference, of revision, and of appeal, in all judicial proceedings.

Police.—Except in the Cantonment of Bangalore, a regularly organized Police Force was unknown in Mysore. From the Amildar, the recognized head of police in the taluq, down to the lowest taluq peon, the officials were employed promiscuously, as police, in serving judicial processes, in supplying the wants of travellers, and in revenue duties of all kinds. The police, which was founded on the remains of the old Kandachar or armed militia of the country, and closely identified with the agricultural population, had always been strictly localised, and as the men were rarely removed from the vicinity of their own village, and were under mere nominal supervision, they were, as a necessary consequence, entirely devoid of discipline and training. By effecting reductions in their numbers, and increasing the rates of pay, the most inefficient men were got rid of, the character of the force improved, and it was now possible for the men to live on their pay, which was clearly

not the case when the average rate of a peon's pay was Rs. 3 per month. The police generally were now confined to their legitimate duties, a separation having been made between revenue and police peons. The Bangalore Cantonment Police was improved, and special police establishments formed for the Pettah or Town of Bangalore, and for Mysore, Túmkúr, and Shimoga, instead of the former system of detaching men in rotation from the taluqs, or from a separate establishment attached to the Division head-quarters.

Jails.—The subject of jail management received much attention. A new scale of jail dietary was framed. A system formerly prevailed in the Mysore jails of supplementing each prisoner's daily allowance of ragi grain with a money allowance of a few pie per diem, to enable them to buy firewood, vegetables, tobacco and other luxuries. This arrangement, as destructive of discipline, was entirely put a stop to.

Revenue.—All lands in Mysore were classified under the Budget system, according to the tenure on which they were held, which is shown below :—

Village Settlements.		*Individual Settlements.*
1. Permanently settled villages (káyam gutta).	Govt.	1. Ryotwar (kandáyam or assessed Government lands).
2. Villages on a progressive rental (shraya).		2. Batáyi, or division of produce.
3. Villages rented for one year (kálávadi ijáre).	Inám.	1. Ardhamányam, uttár, &c., lands.
4. Jódi, or lightly assessed villages.		2. Jódi, or lightly assessed lands granted to village servants.
		Do. Brahmans, fakirs, and devasthans.
		Do. private chatrams and topes.

They were subdivided, as is usual in the south of India, according to the nature of the cultivation, into *wet* or irrigated, *dry*, and *garden*, the collections being shown in account as Money Payments and Batáyi, *i.e.*, division of crop between the Government and tenant. Attention was steadily directed to reducing the extent of land under the batáyi tenure, by substitution of money assessment where practicable, on account of the numerous objections to the former system. The batáyi system, however, could only be finally and satisfactorily extinguished by a Revenue Survey, as there were no other means of equitably assessing the large area held on this tenure under tanks.

The direct manufacture of spirits, toddy, arrack, and ganja, by Government, was entirely discontinued, and the Abkari revenue temporarily farmed, prior to the contemplated introduction of the Sadar Distillery system.

The Mohatarfa, which till a late period included a variety of vexatious imposts founded on no uniform principles, had been revised

in 1860, and comprised now the following: taxes on houses, on shops, on looms, and on oil-mills. The only other direct tax in Mysore was the Plough Tax, revised simultaneously with the mohatarfa, in substitution of the former miscellaneous taxes on ploughs, castes, professions, &c., styled Chillar Báb.

The annual renewal of *ryotwar pattas* was as far as possible discontinued, and existing pattas confirmed for five years, pending the introduction of a Revenue Survey, thus giving additional security to the ryot against the fraud of the shánbhóg, and a great saving of unnecessary labour to the Government officials.

Encouragement was given to private individuals to undertake the repairs of tanks the revenue return from which did not hold out the prospect of the repairs being remunerative to Government, by prescribing such low rates of assessment on dry land converted into wet, as secured to the ryots a tangible profit; and in the case of persons constructing new works, such as tanks or wells, at their own expense, the former dry land rate of assessment was continued, on the equitable principle, not hitherto generally recognized, that a man should reap the profits of capital laid out by himself.

Finance.—A commencement was made towards introducing the Budget system of Accounts. Formerly the accounts were all kept in Canarese, and the pre-audit of expenditure was unknown. English forms and figures were now ordered to be made use of. Currency notes were gradually brought into use, and the confused and miscellaneous copper coins in circulation it was arranged should be by degrees withdrawn.

Military.—The Mysore Horse or Silahdars, on the assumption of the country in 1831, were avowedly disorganized and comparatively useless, but since they had been under European supervision they had greatly improved, and were now probably as efficient as any other body of Savars of the same class. The Barr or Infantry were very useful men, and constantly employed in police duties. They guarded treasure and prisoners at the kasba of every taluq, and escorted both to the District head-quarters when necessary. The pay of a trooper in the Mysore Horse was fixed in 1835 at Rs. 20. In those days this pay was ample, but since then the prices in Mysore had risen considerably, as in other parts of India, and Government this year sanctioned the rate being raised to Rs. 22 and the gradual reduction of the existing strength of the seven regiments from 2,500 to 2,100, or 300 men for each. No change in regard to the other grades was considered necessary. The total strength of the four battalions of the Barr was also to be reduced from 2,161 to 2,000, the pay of 1st class Sepoys being raised from

Rs. $6\frac{1}{2}$ to 7, and 2nd class from $5\frac{1}{2}$ to 6, with a corresponding increase for non-commissioned officers.

In fixing the complement of the Mysore Local Force, the wants of the whole Province were carefully considered, and the troops utilized as much as possible by redistributing them according to the requirements of the newly-formed Districts. With this object, both Silahdars and Barr, instead of being scattered over the country in small parties, were concentrated, by being withdrawn from those outposts where their presence was not necessary, and stationed at the head-quarters of Districts, and on main lines of road.

Administration from 1863 to 1881.

Instead of attempting to record in chronological order the various measures which have from time to time been introduced in pursuance of the policy in operation since 1863 in the Administration of Mysore, it will be more convenient to describe the system and institutions of Government as they existed up to the time of the Rendition in 1881, under the two major heads of Civil and Military,—subdividing the former into Revenue and Finance, Judicature, Public Works, Public Instruction, and Medical Departments, going back to review the important steps by which each had attained to its then constitution and practice.[1]

CIVIL DEPARTMENTS.

Revenue and Finance.—The gross revenue of Mysore in 1791, according to accounts furnished to Lord Cornwallis by Tipu Sultan, was Kanthiraya pagodas 14,12,500, or in the present currency about 42 lakhs of rupees. Tipu Sultan was finally defeated and the authority of the British Government established in 1799 and 1800. The gross revenue from that time is given as follows:—

			Kanthiraya Pagodas	or	Government Rupees.
1799–1800	...	...	21,53,000	...	62,79,583
1800–1801	...	...	24,20,000	...	70,58,333
1801–1802	...	...	26,04,000	...	75,95,000
1802–1803	...	...	25,41,000	...	74,11,250

[1] The information is taken from a variety of official papers too numerous to mention: but much of it, to 1872, is based on the Administration Report for that year by Mr. Wellesley, which contained retrospective summaries relating to each Department by their respective heads, such as Public Works by Colonel (afterwards Sir Richard) Sankey, R.E., Chief Engineer; Finance by Mr. Hudson, Deputy Accountant-General, &c.

The revenue subsequently languished under the personal administration of the late Maharája, and we find that in the year after the country was placed under British Commissioners the receipts amounted to Rs. 55 lakhs only, in the next to 58 lakhs, then to 67 lakhs, and to 76¾ lakhs in the year 1835–6. It fluctuated between 68½ and 81¾ lakhs till 1853–4. The next year of increase was 1856–7, when the gross receipts were 89 lakhs; in 1859–60 they amounted to 99 lakhs, and in 1861–2 to 100¼ lakhs. In 1865–6 they reached 109 lakhs, and in 1872–3 close upon 110 lakhs, since when the revenue stood at from 109½ to 109¾ lakhs.

In the year 1831, when the country was placed under British management, misrule had disorganized the Native Administration and brought the public exchequer to the verge of bankruptcy, and one of the first subjects that demanded the attention of the British Commissioners was the State debt. The amount was approximately stated in 1832 at about 65½ lakhs of rupees, consisting of arrears of pay to the local troops and civil establishments, and the personal liabilities of the Maharája, but the subsequent accounts show that they eventually cost the country about 87¾ lakhs of rupees. The earliest efforts of the Commission were directed towards the discharge of the arrears of pay to public establishments, of which Rs. 8,82,000 were disbursed within the first year, and 25 lacs during the next nine; but they do not appear to have been finally extinguished till 1857–8, a period of twenty-six years, during which the payments on this account amounted altogether to Rs. 35,90,000.

The liabilities of the deposed Maharája were eventually liquidated after investigation by a special officer, Mr. (afterwards Sir) J. P. Grant, who was expressly commissioned for the purpose by the Supreme Government. The amount paid under the awards of his court, between the years 1844 and 1850, amounted to Rs. 34,85,000; but during the thirteen years preceding that settlement, while the country was recovering from the effects of past misgovernment, large sums continued to be paid to the Maharája on account of his stipend of Rs. 3½ lakhs per year, and the fifth share of the net revenue secured to him by treaty. Both payments averaged 11 lakhs annually. The foregoing remarks refer to debts contracted before the British assumption of the government, which were dealt with by Mr. Grant's court. In 1863, however, the condition of the Maharája's finances again attracted the attention of Government. Claims to the amount of 55½ lakhs of rupees were pressing for settlement, and two officers—Colonel C. Elliot, C.B., and Dr. J. Campbell, the Maharája's Darbar Surgeon—were appointed to the task of inquiring into and effecting a commuta-

tion of these liabilities. The amount paid in the years 1864–7 on this account amounted to Rs. 26,90,000. Finally, after the death of the Maharája in March 1868 other debts incurred by His Highness since the year 1864 were commuted by payments in the year 1868–70, amounting to Rs. 12,76,000. Thus the gross amount paid from the Mysore revenues under authority of the British Government in liquidation of the Maharája's personal debts between the years 1844 and 1870 was 74½ lakhs of rupees.

To return to the earlier accounts. In order to meet the liabilities of the State, the condition of the finances was such that it became necessary to obtain a loan from the British Government, in 1831–2 Rs. 2,50,000; in 1832–3, Rs. 10,00,000; in 1833–4, Rs. 9,78,202; and in 1834–5, Rs. 11,94,332; in all, Rs. 34,22,534. Owing to the heavy demands on the revenue on account of arrears due to establishments, it was not till 1837–8 that the first instalment of 3 lakhs was repaid to the British Government. The subsequent payments were, 5 lakhs in 1839–40, 3 lakhs in each year from 1842–3 to 1844–5, 1½ lacs in 1845–6, and 2 lacs in 1846–7; making up Rs. 29,50,000. There was no further payment till 1849–50, mainly owing to the claims of the Maharája's creditors, when the balance—Rs. 4,72,534—of the capital sum borrowed was liquidated. The interest account, made up at the rate of 5 per cent. per annum to November 1851, was, however, still unredeemed. It left Rs. 16,98,261 due by the Mysore State, and that amount was paid by instalments between the years 1852–3 and 1855–6. The total of the capital amount borrowed from the British Government, with interest, was thus Rs. 51,20,795.

All the debts of the State having been liquidated, as well as those of the Maharája which came within the scope of Mr. Grant's adjudication, the financial difficulties bequeathed to the British Administration by the Native Rule may be said to have been surmounted in the year 1856. The task involved an expenditure from the Mysore revenues, of Rs. 87,73,261—or £877,326—during a period of twenty-five years. The multitude of taxes abolished or reduced down to the same period, aggregating 10¾ lakhs of rupees annually, have previously been mentioned. Trade was thus set free and the revenue continued to rise.

State Revenue.—The State Revenue, as distinguished from Local and Municipal Funds, was now composed of the following items, under each of which the amount annually realized down to 1881 is entered:—

Year.		Land Revenue	Forests.	Abkari.	Sáyar.	Mohatarfa.	Salt.
1865-6	Rs.	77,25,767	3,42,959	10,01,944	8,88,699	3,78,304	15,850
1866-7	...	66,56,799	3,66,021	8,47,964	5,67,341	3,30,047	8,480
1867-8	...	80,92,251	4,10,012	9,69,189	7,07,125	3,89,397	18,025
1868-9	...	77,53,671	3,51,476	9,56,508	7,19,157	3,79,424	14,429
1869-70	...	61,31,402	2,95,218	9,79,838	7,56,069	2,82,673	10,611
1870-1	...	60,07,315	3,37,669	10,14,102	7,50,502	2,75,687	10,720
1871-2	...	73,25,280	4,07,112	10,68,754	7,23,154	3,42,771	14,844
1872-3	...	73,50,285	3,76,185	10,80,826	8,85,824	3,88,008	13,437
1873-4	...	71,77,284	5,13,661	11,50,298	8,68,633	3,73,827	18,492
1874-5	...	73,51,268	3,82,162	11,53,773	7,79,697	3,68,249	16,539
1875-6	...	73,78,225	4,45,688	12,29,646	3,67,728	5,97,060	11,485
1876-7	...	64,35,694	4,72,760	11,69,599	3,50,686	4,57,349	5,287
1877-8	...	72,70,654	4,79,283	10,25,596	3,03,662	3,66,231	6,114
1878-9	...	73,00,677	4,51,843	9,52,082	2,76,444	4,58,537	8,713
1879-80	...	69,75,406	5,29,136	8,64,621	2,40,707	4,27,437	11,359
1880-1	...	69,31,132	6,97,779	10,67,635	2,52,826	3,33,020	23,358

Year.		Stamps.	Post Office.	Law, Justice and Police.	Public Works Department.	Other items.
1865-6 ...	Rs.	2,61,583	37,021	91,687	70,663	1,02,214
1866-7 ...	...	2,78,381	36,308	91,406	42,590	91,762
1867-8 ...	...	3,15,157	39,091	1,15,072	36,450	96,552
1868-9 ...	...	3,71,946	37,620	91,077	74,726	1,28,238
1869-70 ...	...	4,22,250	39,997	1,15,219	82,514	1,41,903
1870-1 ...	...	2,92,975	41,720	2,64,199	65,597	1,36,556
1871-2 ...	...	1,97,233	44,368	3,40,360	15,268	1,42,793
1872-3 ...	...	1,88,243	44,876	4,14,397	11,077	2,43,534
1873-4 ...	...	1,92,585	46,666	4,15,754	50,031	1,39,881
1874-5 ...	...	2,02,384	49,749	4,24,265	48,901	1,70,456
1875-6 ...	...	2,07,101	54,281	4,64,087	41,684	1,79,683
1876-7 ...	...	5,07,246	59,749	1,15,899	40,843	1,45,113
1877-8 ...	...	4,96,873	55,450	1,22,531	25,073	1,21,446
1878-9 ...	...	5,29,685	50,347	1,32,633	60,235	2,31,657
1879-80 ...	...	5,06,441	49,870	1,18,427	42,785	1,63,326
1880-1 ...	...	4,67,882	51,821	1,15,603	12,085	1,40,705

The main source of revenue in Mysore is thus seen to be the land. But before specifying the amounts realized from various sources under this head, it is desirable to describe the then existing tenures, and the system of land settlement.

The *land tenures* in the Province may be broadly divided into *Sarkar* or Government lands, and *Inám* lands. Government lands are held under the ryotwari tenure, either on *kandáyam*, *i.e.*, a fixed money assessment, or on *batáyi*. Except in the settled taluqs, where the term of the settlement is fixed at thirty years, kandáyam lands are held on annual leases or pattas, but the assessment is seldom altered and hardly ever raised. By far the larger portion of the land in the Province is held on this tenure. Under the batáyi system, the land is held direct from Government, but the share of Government is paid in grain. The

proportion generally claimed by Government is one-half, but it is probable that in reality only one-third is received, the remaining two-thirds being shared between the ryots and the village servants. The batáyi tenure, though still greatly prevalent in the Nandidroog Division, will wholly cease and disappear with the completion of the Survey and Settlement in each taluq. In the meantime the ryots can always convert their occupation of batáyi lands into that of the ordinary kandáyam tenure if they please, and every encouragement to their so doing is afforded by the Government, which earnestly desires the entire abolition of the batáyi tenure.

In the case of private estates, such as inám and kayamgutta villages, and large farms of Government lands cultivated by payakaris or under-tenants, the land is held on the following tenures:—

1st. *Váram*, under which an equal division of produce is made between the landlord and the tenant, the former paying the assessment of the land to the Government. 2nd. *Mukkuppe*, under which two-thirds of the produce go to the cultivator, and one-third to the landlord, who pays the assessment of the land. 3rd. *Arakandáya* or *chaturbhága*, under which the landlord gets one-fourth of the produce and pays only a half of the Government revenue, the remaining half being discharged by the cultivator, who enjoys as his share three-fourths of the produce. 4th. *Wolakandáya*, in which the tenant pays a fixed money rate to the landlord. This may either be equal to or more than the assessment of the land.

An hereditary right of occupation is attached to all kandáyam lands. As long as the pattedar pays the Government dues he has no fear of displacement, and virtually possesses an absolute tenant right as distinct from that of proprietorship. When the Government finds it necessary to assume the land occupied by him for public purposes, he is always paid compensation, fixed either by mutual consent or under the Land Acquisition Act.

Vargs.—In the Malnad or hilly taluqs of the Nagar Division, situated on the plateaux of the Western Ghats, the holdings of the ryots are called vargs. The varg consists of all the fields held by one vargdar or farmer, and these are seldom located together, but are generally found scattered in different villages, and sometimes in different taluqs. When closely examined, the varg means nothing more than a patta or deed covering the different lands held by one proprietor in one or more villages. The varg system does not appear to be of old origin, and is said to have come into existence on the assumption of the management of the country by British officers in 1831, when the Superintendent, anxious to procure an accurate record of each man's holding, directed a Paham account to be framed, and the holding of each man to be therein shown, with its reputed extent and assessment. This precaution was necessary considering the topographical

peculiarities of this portion of the Province, consisting of hill and dale covered with jungle, and not unfrequently inaccessible. The rule now is that no one is allowed to relinquish or apply for a portion of the varg unless the whole of it is resigned or taken up, but the new Survey Department is breaking down the old system, and in settled taluqs the extent and assessment of each field forming the varg is defined, so as to afford the usual facilities to the ryot for retaining and resigning as much as he cannot cultivate, provided that whole fields or numbers only are relinquished.

Hankalu and Háḍya Lands.—Attached to each varg are tracts of land called hankalu and háḍya, for which no assessment is paid, but which are said to be included in the varg to which they are attached. The hankalu, like the bánes in Coorg, are set apart for grazing purposes, but have of late also been used for dry cultivation. The háḍya are lands covered with low brushwood and small trees, from which firewood and leaves, &c., are taken for manuring the fields of the varg.

Taṭṭina Hankalu.—In the Malnad to each gadde or wet field are attached tracts of dry land, called taṭṭina hankalu, for which no assessment is paid, but which are said to be included in the assessment on the wet field.

Káns.—These are large tracts of forest, extending in one case over eight miles in length, for which a cess called kan khist is paid. The káns are preserved for the sake of the wild pepper-vines, bagni palms, and certain gum-trees that grow in them, and also to enable the vargdars to obtain wood for agricultural and domestic purposes. The privilege of cutting wood in them, formerly allowed to ryots, has, after much discussion, been withdrawn, and the holders of káns are allowed only to enjoy the produce above mentioned, to clear the undergrowth and clip trees where necessary for the growth of the pepper-vine and also for manuring purposes. It is under contemplation whether the usufruct of káns should not be leased out as in Canara, the Government reserving all rights over the live timber of all kinds.

Kumri.—This is a system of cultivation almost peculiar to the hill tribes. Soon after the rains, they fell the trees on a forest site, a hill-side being preferred. The trees are left lying till January and then set on fire. The ground is afterwards partially cleared, dug up, and sown towards the end of the rains with ragi, castor-oil nut, and other dry grains. In the first year the return is prodigious, but it falls off by one-half in the second year, and the place is then abandoned till the wood has again grown up. Strong fences are made to keep off wild beasts, and for a month before harvest the crop is watched at night by a person on a raised platform. No doubt kumri cultivation thus carried on involves great waste of timber, but if it is restricted to undergrowth it is not so wasteful.

Coffee Lands.—Grants of land for coffee cultivation are made out of the Government jungles, chiefly in the Western Ghats, forming the Nagar and Ashtagram Malnad. On receipt of applications for a plot of such land, its area is ascertained by a rough survey, the boundaries defined, and then it is sold by public auction. The successful bidder is granted a patta or title-

deed. The clauses of the coffee patta or title-deed transcribed below show on what tenure land for coffee cultivation is now held by the planter.

"These lands are granted to you for the purpose of planting coffee, and should you raise any other crop upon them, lands thus appropriated will be liable to assessment according to the prevailing rates in the taluq. By this, however, it is not intended that plaintains, castor-oil plants, or fruit-trees, planted for the *boná fide* purposes of affording shelter or shade to the coffee, should be liable to taxation.—On the coffee-trees coming into bearing, you are to pay Government an excise duty or hálat of four annas on every maund which is produced. This is in substitution of the ancient wára. This taxation is subject to such revision as the Government of Mysore may at any time deem expedient.—For every acre of land which you take up under this patta, you must within a period of five years plant a minimum average number to the whole holding of 500 coffee-trees to the acre. The Government reserves to itself the right of summarily resuming the whole of any uncultivated portion of the land mentioned in your patta should you not conform to this condition.—You are exempt from the visits of all jungle and petty Izardars, who will be prohibited from entering hereafter lands taken up for coffee cultivation, and you are empowered to fell and clear away the jungle, but previous to doing so, you are bound to give six months' notice to the Sarkar authorities, to enable them to remove or dispose of all reserved trees which may exist on the holding.—Should you wish to sell or alienate in any way the lands mentioned in this patta, you must notify the same to the Commissioner of the Division, and this patta must be forwarded for registration under the name of the new incumbent. Any attempt at evading the hálat will involve confiscation of the article itself, together with a fine of twice the amount of hálat leviable upon it.

Cardamom Lands.—Lands for the cultivation of cardamom are granted from the jungles on the east side of the Western Ghats, where this plant grows spontaneously. In these jungles are also to be found lac, resin, bees'-wax, gums, pepper, and similar other articles. The farms were formerly leased out, the limits of the tract being annually defined ; but to afford every facility to the planter, and to encourage the cultivation of the cardamoms, rules have recently been framed, under which those planters who are desirous of embarking on cardamom cultivation can obtain land for the purpose on more liberal and advantageous terms. Under these rules, grants of land not exceeding 200 acres, nor less than 10 acres, and well defined by natural features, can, after being put up to auction, be secured by planters on 20-year leases : the lessee binding himself to pay the actual cost of survey and demarcation at once, and the auction price by twenty instalments. At the expiration of the lease, should the lessee be desirous of renewing it, he is allowed to do so on terms fixed by Government, and in the event of his declining to renew, he is paid compensation for improvements from any surplus on the resale of the land realized by Government. The lessee pays a hálat or excise duty of two rupees per maund of 28lbs. on the cardamoms produced by him, and as the land is granted solely for the cultivation of cardamoms, the rules provide that if

any portion of it is cultivated with any other description of crop, such land will be assessed at the prevailing rates. The lessee is, however, allowed to make use of minor forest produce, and to fell trees (with the exception of he ten reserved kinds) in order to facilitate the growth of his cardamoms. On the other hand, he binds himself to plant not less than 500 cardamom plants per acre on his land by the expiration of five years from the date of his grant.

Kayamgutta.—This term, in its literal sense, describes a permanent village settlement, and it probably owes its origin to a time when many villages were depopulated and when the Government found it advantageous to rent out such on a fixed but very moderate lease, the renter undertaking to restore them to their former prosperous condition. These tenures were also largely added to during the former Maharája's direct administration of the country, when in several cases flourishing villages were given to favourites at Court. The kayamgutta lands comprise some of the most valuable inám lands in the Province.

Shraya, or lands granted on progressive rent.—Waste lands, chiefly in jungly districts, were granted free of assessment, at $\frac{1}{4}$ rates for the first year, and afterwards increasing yearly till the fourth or fifth year, when the full assessment is attained. Under the advantages afforded by this tenure, large tracts of land have been brought under cultivation and many villages established.

Inam Tenures.—The following are the inám tenures in Mysore:—

Sarvamánya, villages or lands held free of all demands, including sáyar, mohatarfa, &c.

Ardhamánya, Ardhayaswásti, or land assessed at half the usual rate.—This proportion is not, however, maintained, the share of the Government varying in some cases from $\frac{1}{10}$th to $\frac{3}{4}$ths.

Joḍi villages, or lands granted and held on a light assessment, the proportion of which to the full rates varies.

Joḍi Agrahárs.—These are ordinarily whole villages, held by Brahmans only, on a favourable tenure; but in some cases the agrahárs merely consist of selected streets in Government villages, to which patches of cultivation, generally leased out by the Brahman agrahárdars, are attached.

Sthal or *Mahal Joḍi.*—These ináms appear to have come into existence during the loose fiscal administration of the Maharája's time. Their holders claim to be in the position of holders of kayamgutta villages, but as they derive their grants from incompetent local revenue officers, they stand on a different footing, and in this view the Inám Department has been directed to confirm only those Mahal Joḍi ináms for which valid proofs of alienation are adduced.

Bhaṭamánya or *Brahmádáya.*—These terms are used to designate grants and endowments of land held by Brahmans for their support, which are personal grants as distinguished from those held on conditions of service.

Devádáya and *Dharmádáya* are grants made for the support of religious and charitable institutions, and persons rendering services therein.

Umbli, Uttár.—These terms are used, chiefly in the Nagar Division, to signify lands held by village servants on condition of service, subject generally to the payment of a jodi.

Shist and *Kutugadi Lands.*—These are also held by village servants, and descendants of the holders of the defunct service of Deshpande, Kulkarni and Nadigar, on a jodi, which is in fact the old Sivappa Nayak's shist or assessment without the patti or subsequent imposition.

Kodigi Ináms represent land granted free of tax, or on a light assessment, in consideration of services rendered in the construction or restoration of tanks, or on condition of their being maintained in good repair. But as the repair of such tanks was almost universally neglected by the inámdars, they have been relieved of the duty, and the following rules since adopted for enfranchisement of the ináms, the quit-rent being credited to the irrigation fund for up-keep of the tanks. i. Ináms granted to private individuals for the construction and up-keep of tanks, are enfranchised on $\frac{1}{4}$ quit-rent if the conditions are certified by the chief Revenue Officer of the District to have been fairly observed and the tanks to be in use; otherwise at $\frac{1}{2}$ quit-rent. ii. Ináms granted to private individuals for the up-keep of Government tanks, are enfranchised on $\frac{1}{2}$ quit-rent if certified to as above; otherwise they are confirmed to the present holders on $\frac{1}{2}$ assessment for life, and afterwards brought under full assessment. iii. Kodigi ináms in rent-free villages, as also in jodi or quit-rent villages, when their up-keep rests with the jodidars, are confirmed on the existing conditions, subject to regulations for the proper maintenance of the tanks.

Bávadi Dasavanda Ináms are ináms granted for the digging and up-keep of wells, chiefly in some of the taluqs of the Kolar District. Formerly th of the produce of the lands thereby irrigated was paid to the constructor of a well, as well as his remuneration. But this proportion is not strictly kept up in practice.

Kerebandi and *Kerekulaga Ináms.*—These ináms were granted for the annual petty repairs of tanks. As, however, the system was found practically useless, and the inámdars invariably neglected their obligations, such ináms are confirmed to the present holders on half assessment for life, and on their death brought under full assessment.

Pattagaddes—These are patches of land held by the ryots of one village in another, not as paya karis (foreign cultivators) but as a part and portion of their own village. These pattagaddes are distinguished by separate boundary-marks from the other lands of the village in which they are situated. The origin of these tenures is traceable to certain mutual agreements between the cultivators of adjoining villages, to allow those of one to cultivate portions of wet lands under the tank of another constructed by the joint labour of all. The tenure may also be in part due to an exchange of land, by which ryots who had no wet land in their own village became entitled to a portion of the wet land in another.

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Such are the principal land tenures in Mysore. By far the most common of these is the ordinary kandáyam, or ryotwari tenure. The main distinction is between ryotwari and inám land. Each of these descriptions of land is now being settled on a permanent basis, by the Revenue Survey and Settlement Department, and the Inám Department.

Revenue Survey and Settlement. — Immediately after the conquest of the country, a general topographical survey was made by Colonel Mackenzie, subsequently Surveyor-General of India. While Purnaiya was Divan, a revenue survey was made, but it was necessarily very imperfect at the time, and after the lapse of fifty years the records had become extremely defective, advantage being taken of the insurrection to destroy the survey papers pretty generally. Though nothing was subsequently done in the way of any general measure, a good deal was effected by measurements of particular lands to check the shánbhógs in their attempts to falsify the records. Sir Mark Cubbon was, however, fully alive to the value of a thoroughly scientific Revenue Survey and Assessment, and expressed his intention, if the financial state of the country continued to prosper, to propose its being carried out. In July 1862 the more glaring defects apparent in the existing revenue system were stated in some detail to the Government of India. A brief inquiry had elicited proof of the existence of so much discrepancy and fraud, that the Superintendents were called on to report upon the classification of soils in their respective Districts, and on the prevailing rates of assessment.

In one taluq of the late Bangalore Division, there were reported to be 596 rates of assessment on dry land per kudu, which is 3,200 square yards, or about $\frac{2}{3}$rds of an acre, these rates being fixed on a progressive scale ranging from 1 vis = 1 anna 9 pie, to 3 pagodas 2 fanams = Rs. 10 1 anna per kudu, or from $3\frac{1}{2}$*d.* to £1 6*s.* 10*d.* per acre, distributed over 26 classes of land. For wet and garden land, the results, though less striking, were also remarkable, in one case the number of rates being 81, and in the other 451, on the kudu of 500 square yards.—In Chitaldroog, the assessments were nearly as complicated. The kudu is generally of the same extent as in other parts of the Province, *viz.*, 3,200 square yards on dry lands, and upon it the rates were 465 in number, with a minimum of 1 anna and a maximum of Rs. 9-4-11.—In parts of Ashtagram the assessment was theoretically based on Purnaiya's survey, but, in fact, few traces were left of this, and its principles were unknown, the practical consequence being that people paid generally what their forefathers did, without much interference in time-honoured abuses. In the Nagar Division, owing to the hilly nature of the country, and to its having been ruled for centuries by quasi-independent chiefs, the character of the landed tenure presented a notable contrast to that which prevailed in the rest of the Province; but scarcely more

uniformity was to be found in the rates of the assessment, or in the classification of the soil, than in the other Divisions, as in one hill taluq, taken at random apparently, there were 147 rates on wet land, varying in rentals of from nearly Rs. 34 to a little more than R. 1 per khandi, *i.e.*, from about Rs. 16½ to 7⅔rds annas per acre. In the plain taluqs of the District, less discrepancy existed in the rates of assessment, but some of them were enormously high, and in numerous instances the returns showed great deviations from the rates which formerly existed.

In consequence of this capricious and intricate system of assessment, all real power had passed into the hands of the shánbhógs, or hereditary village accountants, the recognized custodians of the records relating to the measurement and assessment of lands; and as no permanent boundary-marks had ever been erected, it rested with them to regulate at will every ryot's payments. On the better classes of land the rates in some cases were so preposterously high, as to make it certain that unless a man so assessed held considerably more land than was entered against him, he could not possibly pay the Government demand; while, on the other hand, much land capable of being profitably cultivated under a moderate assessment was thrown up, because the lighter rates had been fraudulently shifted to superior lands held by public servants and others who could afford to bribe the shánbhógs.

In addition to the discrepancies in the rate of assessments, another fertile source of embarrassment existed in the prevalence of the batáyi system, and the unsatisfactory state of the inám holdings, regarding which it was notorious that from the absence of any adequate check on unauthorized occupancy extensive frauds had been practised.

The Supreme Government fully recognized, as the only effectual remedy for the evils pointed out, the advisability of introducing a Revenue Survey and Settlement, accompanied *pari passu* by an equitable and low assessment, such as had given so beneficial an impetus to some of the Districts of Madras and Bombay; and it was subsequently decided to adopt the Bombay Revenue Survey system, which had been proved incontestably by figures, and by the well-known satisfaction of the ryots, to be successful in the Districts of that Presidency bordering on Mysore.

My reason, writes Mr. Bowring, for preferring the system of survey and settlement pursued in Bombay may be summed up thus:—I found that in Mysore, which borders both on that Presidency and on Madras, we had ample opportunity of comparing the method pursued in either case. The difference is as follows:—Under the Bombay system, the survey, classification, and settlement are all continuous links of one chain, forged under the directions of the same individual, whose interest it is to see that every successive link fits closely into its predecessor, every step being also carefully taken with advertence to the next one. There is no such close connection in the Madras system. The boundaries are fixed by one person,

the survey laid down by another, and the settlement by a third, these several agencies not being under one responsible head. The survey, so far as I can judge, is excellent, but the surveyor had not the power of altering boundaries if incorrect. On the completion of the survey, the work was taken up by the Settlement Officer.

In introducing the survey and settlement into any taluq, the first steps taken are the division of the village lands into fields, the definition of the limits of such fields by permanent marks, and the accurate measurement of the area of each field in itself, by chain and cross-staff. In the division of the lands into fields, the points kept in view are:— 1st. That the fields, or at least a majority of them, should not be larger than may be cultivated by ryots of limited means. 2nd. That they should not be made smaller than is necessary for the above object without an adequate reason. The former of these points is determined by the extent of land capable of being cultivated by a pair of bullocks, which area varies according to climate, soil, description of cultivation and methods of husbandry. In the second case, when a holding is of small area, contiguous small holdings are clubbed to bring the area within the limit. The marks used for defining the limits of fields, laid out as above, are rectangular mounds of earth (popularly known as *bándhs*) at the four corners and at intervals along the side. The protraction on paper of the survey made of the village lands by cross-staff, theodolite, and chain, constitute the village maps, which afford the most minute information as to the position, size, and limits of fields, roads, water-courses, &c., comprised within each village, while they possess a degree of accuracy sufficient to admit of their being united so as to form a general map of a taluq or District, exhibiting the relative positions and extent of villages, topographical features of the country, and a variety of other information of use to the local revenue and judicial officers.

The next step towards the settlement of the taluq is the classification of the land, with the object of determining the relative values of the fields into which the land is divided. For this purpose, every variety of soil is referred to one of nine classes, such classes having a relative value in annas or sixteenths of a rupee, and this division of classes experience has proved to afford a sufficiently minute classification for all practical purposes. All land is divided into dry-crop, wet and garden-land, but in the two latter, in addition to soil classification, the water-supply is taken into consideration, and its permanency or otherwise regulates the class to which it is referred ; the soil and water class conjointly afford an index to the value of the field. In the case of gardens which are irrigated by wells, in addition to the classification of

soil, the supply, depth, and quantity of water in the wells, the area of land under each, and the distance of the garden from the village, as affecting the cost of manuring, &c., is carefully ascertained. The whole of the fields into which each village has been broken up being thus classified, the taluq is ready for settlement.

In this last proceeding, the first question taken into consideration is the extent of territory for which a uniform standard of assessment should be fixed. Among the most important influences admitted into the consideration of this point are, climate, position with respect to markets, communications, and the agricultural skill and actual condition of the cultivators. The villages of the taluq having been divided into groups, according to their respective advantages of climate, markets, &c., and the relative values of the fields of each village having been determined from the classification of the soils, command of water for irrigation, or other extrinsic circumstances, it only remains to complete the settlement by fixing the maximum rate to be levied on each description of cultivation, together with the absolute amount of assessment to be levied from the whole.

The determination of this point, involving the exercise of great judgment and discrimination, is arrived at by a clear understanding of the nature and effects of the past management of the taluq for twenty years, and by examination and comparison of the annual settlements of previous years. The maximum rates having been fixed, the inferior rates are at once deducible from the relative values laid down in the classification scales, and the rates so determined are applied to all descriptions of land. When the calculation of the assessment from these is completed, field registers, embodying the results of the survey, are prepared for each village separately, for the use of the revenue authorities. The registers and the village maps form a complete record of the survey operations; as long as these and the field boundaries exist, all important data resulting from the survey will be preserved.

The survey rules, and the guarantee which has been formally notified, while securing the just rights of the State in clear and unequivocal terms, also define those possessed by the ryot in the land. The benefits of the improvements he makes to the land are left to him exclusively during the present lease, which extends over a period of thirty years; and it has been announced that at the next revision the assessment will not be revised with reference to the improvements made at the ryot's cost, but according to the progress of natural events, the benefits of which the Government have a right to share equally with the ryot.

The Survey and Settlement Department in Mysore is further entrusted with the important and arduous duty of revising and settling the village service emoluments. It assumes great importance owing to the necessity of providing sufficient remuneration for the patels in connection with the organization of the Village Police. At present the remuneration of all classes of village servants is very uneven. Under the Survey Settlement the *áya* payments, that is to say the fees realized by patels and shánbhógs in the shape of grain paid to them direct by the ryots, have been abolished, and a scale of remuneration has been fixed in the shape of money payments in the surveyed taluqs. The áya payments, from which the ryot has thus been relieved, are included in the land assessment he has to pay to Government.

The progress of the operations of the Survey Department, up to the close of the working season of 1880–1, that is, the 31st October 1880, shows that out of the 69 taluqs comprised in the Province, only 10 had been wholly untouched. The remaining 59 had been measured or were in course of measurement, while in 42 classification was completed or in course of completion.

The survey commenced in 1863 in the north, in Chitaldroog District, and worked westwards and southwards. The Department was controlled by a Commissioner, under whom were a Superintendent, a Deputy Superintendent, and 14 Assistant-Superintendents, but during the famine most of these were transferred for famine duty and the number was subsequently reduced. The total area measured and classed, from the commencement of the survey operations up to the end of March 1881, was 13,915,826 acres measured, and 11,292,928 acres classed. The total cost to the 31st October 1880 amounted to Rs. 34,04,826. The following is the annual statement of work done :—

Year.	Acres measured.	Acres classed.	Cost per acre of both operations.		Year.	Acres measured.	Acres classed.	Cost per acre of both operations.	
			As.	P.				As.	P.
1863–4	291,595	200,176	3	2·7	1872–3	943,655	1,051,076	4	3·8
1864–5	507,288	248,244	2	9·5	1873–4	831,191	696,933	5	3·5
1865–6	817,304	454,620	2	4·0	1874–5	933,893	762,653	5	1·3
1866–7	743,041	473,996	2	8·7	1875–6	1,017,015	899,268	4	8·5
1867–8	789,780	669,521	2	9·9	1876–7	596,266	508,794	5	4·6
1868–9	995,428	680,645	3	2·6	1877–8	677,691	568,320	5	4·6
1869–70	1,015,756	526,567	3	9·6	1878–9	545,109	574,896	5	5·8
1870–1	972,819	998,142	3	6·5	1879–80	550,214	723,176	6	5
1871–2	1,081,163	658,005	3	10·5	1880–1	652,423	555,860	6	3·7

Inám Department.—The ináms in the Province may all be referred to one of three epochs, and the statement below shows the value of the land ináms which had sprung up during each of these periods.

Period of Ináms.	Whole Villages.		Minor Ináms.	
	Valuation.	Jódi or light assessment.	Valuation.	Jódi or light assessment.
To the termination of Divan Purnaiya's administration in 1810.	2,86,038	1,32,150	4,99,528	1,48,134
Granted during the Maharája's administration, 1811 to 1831 ...	3,19,167	62,435	35,025	...
Granted by the Chief Commissioner of Mysore	...	...	18,500	8,000
Sthal or unauthorized ináms ...	...	...	63,616	17,946
Total Rs.	6,05,205	1,94,585	6,16,669	1,74,080

After the fall of Seringapatam in 1799, the British Commissioners directed Purnaiya plainly that no alienation of land should be made without the Resident's approbation. This salutary advice was fairly acted on by the Divan during his long and successful administration. The alienations between 1799 and 1811 (when the Rája assumed the government of the country) were in reality few and unfrequent, and the ináms which are entered as having been created during Purnaiya's administration, are (with the exception of his own jágir) chiefly those which had been sequestrated during the Muhammadan usurpation, and which on the re-establishment of Hindu rule it was thought proper to restore. But this measure being accompanied with an increase of the jódi on such ináms, the alienation of revenue in the fresh grants was counterbalanced. From 1810 to 1831, when the British Government interfered to save the country from ruin, the Rája recklessly alienated lands, some of them forming the best villages in the country, besides confirming others on permanent or kayamgutta tenure, while his loose system of administration afforded his subordinate officers opportunities for alienating land without proper authority. The third epoch dates from the commencement of the British administration in 1831. The grants made during this period are comparatively of small value, and are held on condition of service, consisting in the upkeep of chatrams, maintenance of groves, tanks and avenue trees. In addition to the above, the statement shows a considerable number of sthal ináms, or, as they are sometimes termed, chor ináms. Under this head are comprised all such ináms as, although enjoyed for some time, have not been properly registered as granted by competent authority.

The necessity of a searching investigation into the inám tenures of the Province, with the view of securing those ináms which had been granted by competent authority to their possessors on a permanent basis, very early attracted the attention of the British Government ; but

it was not until 1863 that any definite scheme for this purpose was mooted. It was then found that the operations of the Revenue Survey and Settlement Department created alarm and evoked opposition among the inámdars, and it was thought advisable that rules for the confirmation of ináms on a liberal principle should be drawn up. After much discussion, it was decided to adopt the principles which had after long deliberation been decided on in the Madras Presidency. In one important respect, however, these principles were departed from. The Inám Commissioner was constituted the final judicial authority, and his decision was not, as in Madras, made liable to be reversed by a Civil Court. But after the transfer of the Inám Commissioner's duties to the Survey and Settlement Commissioner, this provision was altered, and the Madras system, with one exception, which will be noticed below, prevailed in its integrity. The Inám Rules for Mysore were sanctioned by the Government of India in April 1868. These rules, based on the theory of the reversionary right of Government, were so framed as to meet the several descriptions of inám lands existing in the Province, testing their validity—1st, by the competency of the grantor, irrespectively of the duration of the inám, whether 50 or less than 50 years old; 2nd, by the duration of the inám for 50 or more than 50 years, irrespectively of the competence or otherwise of the grantor.

The following are the principles on which the settlement was conducted:—

i. When sannads had been granted by the Maharája or by his predecessors, and when they conveyed full powers of alienation and were hereditary, the ináms were treated as heritable and alienable property.

ii. When sannads emanating as above did not convey full powers of alienation, the ináms might be enfranchised by payment of a quit-rent equal to one-eighth of the assessment of the tenure, except in the case of ináms granted for the performance of religious, charitable, and village service, which are still required to be rendered.

iii. When sannads have been granted by incompetent persons, and when they are less than 50 years old, a compulsory quit-rent, equal to one-half of the assessment, was imposed. But in doubtful cases, and where there was a probability that the inám had been enjoyed for fully 50 years, the quit-rent to be imposed was one-fourth of the assessment.

At the time of its first organization in 1866, the Inám Commission was composed of an Inám Commissioner, one Special Assistant, and three Assistants. These officers were at first invested with judicial powers. But at the commencement of the year 1872–73, the Department was reorganized. The control of its proceedings was then transferred to the Survey Commissioner, while the settlement was

carried on, under his direction, by an officer styled Superintendent of Inám Settlements, aided by three Assistants, on whom devolved the preliminary work of registering the ináms, taluq by taluq, and of collecting all the material for settlements. Under this scheme, the judicial powers hitherto exercised by Inám officers were withdrawn, and claims *inter partes* were referred to the regularly constituted Civil Courts. In other respects the rules of settlement remained the same as before, except in the case of whole inám villages. Up to 1872, the determination of the extent and value of inám villages for purposes of enfranchisement was based upon the Madras system of procedure, which is very liberal. Under this system, the Inám Department does not profess to estimate the acreage of ináms. Unless the terms of the sannad make it perfectly clear that the Government only intended to assign a certain number of acres, and was deceived as to the extent of the village, the mere fact that the number of acres enjoyed by an inámdar exceeded the number entered in his sannad, was not allowed to operate prejudicially to him. As regards valuation, the old assessment recorded in Purnaiya's Jári Inámti accounts was adopted, with such additions as were deemed suitable or equitable on account of the right of the State to prospective cultivation of waste lands; and Purnaiya's old valuation was adopted when the accounts of present rental furnished by the inámdars fell short of it or could not be relied upon.

But in 1872, upon a representation of the Survey and Settlement Commissioner that the course above described, based upon imperfect data, would be too liberal to the inámdars, and injurious to the Government in not securing the full amount of quit rent and local fund cesses, a survey of whole inám villages, with a view to ascertain their correct valuation, was sanctioned by the Chief Commissioner for purposes of the inám settlement. And as the survey could not keep pace with the inám inquiry, which had already out-stepped the survey, a system of charging *ad interim* quit-rent, upon the best data forthcoming, was devised, on the understanding that this settlement was to be merely temporary, and to last only until the land was valued by the Survey and Settlement Department.

The following statement shows the value of minor ináms of different descriptions, payable in cash, at the time that their investigation and registration were commenced by the Inám Department in 1868:—

Granted	Up to Divan Purnaiya's resignation, 1810.			By the Maharája.			By the Chief Commissioner.			Total.		
Nagad Muzráyi. Rs.	1,42,115	2	4	1,40,234	7	7	19,678	4	7	3,02,027	14	7

The operations of the Inám Department were brought to a close in 1881. The total number of land ináms confirmed was 57,888, of which 57,726 were enfranchised and 162 unenfranchised. There were besides 11,302 ináms resumed for invalidity of tenure. In 4,658 cases the land could neither be identified nor was it in enjoyment: they were therefore struck off the list. Cash grants or muzráyi payments were confirmed to the number of 1,942, amounting in value to Rs. 2,68,940: in 415 cases the payments were resumed, and in 982 struck off as having been formerly resumed.

The total cost of the Commission amounted to Rs. 9,53,581, and 89 per cent. of this was added to the revenue through its operations, though conducted on principles most liberal to the inámdars. Its necessity therefore was evident.

Muzráyi Department.—A question of almost equal importance to that of inám holdings in land, is the settlement of the money grants made at various periods to numerous institutions and individuals for services or otherwise. After the assumption of the country in 1831, the management of these funds and the up-keep of the institutions were vested in the Superintendents and their subordinate District officers. In 1852 Sir Mark Cubbon, the then Commissioner, took the administration of the Muzráyi Department into his own hands, and on his departure in 1861 it again devolved on the Superintendents. In 1866 the Government of India observed, that although the peculiar circumstances under which Mysore was administered might render it necessary that certain classes of acts should be performed which would not be thought of in a purely British Province, yet where such acts were connected with idolatrous buildings and practices, there seemed no reason why any Christian officer of the Government, or indeed any Government officer as such, should be called on to perform them. Accordingly in 1867 the Muzráyi Department was finally placed in charge of a Native Assistant in each District, he being styled the District Muzráyi Officer.

The orders passed by the Muzráyi Officer were subject to appeal to the Deputy Commissioner and Commissioner, and finally to the Chief Commissioner. The accounts, &c., were submitted to the Chief Commissioner's Huzur Daftar Department, where they were checked and examined.[1]

[1] The total income of the Muzráyi Department for 1880–1, including balance of previous years, amounted to Rs. 4,78,287, and the total expenditure to Rs. 3,30,134, leaving a balance of Rs. 1,48,153.

The fixed annual grant to Muzráyi institutions stood at Rs. 2,92,986 3 a. 7 p. in 1880 as follows:—

Land Revenue.—The land revenue, as already stated, was realized either from a direct money assessment or from a division of the crop under the batáyi system, which was being gradually converted into the former. In 1870, with the view of affording relief to the ryots by enabling them to bring the bulk of their produce to market before meeting the Government demand, the instalments were made payable at the subjoined rates and periods :—

Districts.	Dec.	Jan.	Feb.	Mar.	Apl.	May.
Bangalore, Kolar, and Chitaldroog. Annas.	...	2	3	4	4	3
Túmkúr	2	3	4	4	3	...
Mysore	2	4	6	4	...	...
Hassan	...	3	5	5	3	...
Shimoga and Kadur, Maidan...	...	...	2	6	6	2
,, Malnad...	...	...	2	4	6	4

But it was found that the indulgence was abused by the improvidence of the cultivators, and the collection of revenue was attended with great difficulty after they had disposed of their crops. The kists were therefore in 1874 reduced to four, and the collection period or

	R.	a.	p.
Temples	1,12,654	14	3
Chattrams	54,620	12	1
Dargas	4,181	3	0
Masjids	3,190	14	2
Matts	52,708	5	4
Miscellaneous ...	15,922	2	9
	Rs. 2,43,278	3	7

Under the management of the officer in charge of the Palace at Mysore.

	R.	a.	p.
Temples	34,577	0	0
Chattrams	6,604	0	0
Other institutions ...	8,527	0	0
	Rs. 49,708	0	0

The actual income of the institutions was :—

	R.	a	p.
Money allowances from Government	2,50,021	2	5
Receipts from lands	69,657	15	8
Private contributions	35,840	14	5
	Rs. 3,55,520	0	6

Besides these the Puduvat funds of Devasthanams amounted to Rs. 1,10,319. They are classed under four heads :—1. Sums deposited by private individuals, in trust with the temple manager or guardian, on condition of the interest being devoted to a special object or service, the disposal of the principal being left to the discretion of the manager. 2. Sums lent by one individual to another with the stipulation that the interest shall be paid to a temple. 3. Voluntary agreements entered into by private individuals to pay to a temple the interest accruing on certain sums assigned for the purpose, but retained in their own hands. 4. Savings from the Government allowances or Tasdik, lent out on interest by the temple managers for the benefit of the institution.

revenue year made conterminous with the official year, which ends 31st March. Under this arrangement the payments were :—

Dec. 2 annas, Jan. 6 annas, Feb. 6 annas, Mar. 2 annas,

except in Mysore District, where the rates first given were retained.

The following figures show the amounts obtained from direct assessment and from batáyi for ten years to 1881 :—

Year.	Money Assessment.	Batáyi.	Year.	Money Assessment.	Batáyi.
	Rs.			Rs.	
1871-2 ...	70,50,091	1,13,942	1876-7 ...	64,08,876	26,818
1872-3 ...	70,41,633	1,67,820	1877-8 ...	72,33,658	36,996
1873-4 ...	70,90,151	87,133	1878-9 ...	71,69,502	1,46,499
1874-5 ...	72,04,720	1,46,548	1879-80 ...	69,64,657	30,217
1875-6 ...	73,19,641	58,584	1880-1 ...	69,34,262	24,196

The various sources of land revenue, with the proportion ordinarily contributed by each towards the sum of the collections under this head were as follows, but the figures were much affected in the famine years, and the coffee hálat also fell :—Dry land, 30 to 31 lakhs of rupees ; wet land, 23 to 23¼ lakhs; garden land, 10 to 10¾ lakhs; sugar-cane, 1½ lakhs; mulberry, ½ a lakh ; coffee hálat, ¾ lakh ; pasture lands, 1 to 1¼ lakh ; kayamgutta villages, 62,000 ; jóḍi and whole inám villages, nearly 1½ lakh ; inám jóḍi and minor ináms, 2 to 1¾ lakhs ; sale proceeds of Government land, 4,000 to 7,000 ; miscellaneous, 1 to 1½ lakh.

Of the wet land, before the famine, fields irrigated with river-water yielded 3 to 3¼ lakhs of rupees ; with tank-water, 12 to 13¼ lakhs ; with rain-water, 5½ to 5¾ lakhs ; by means of bucket, 62,000 ; by lever, 3,500 ; by wells, 60 ; from jungle streams, 32,500 to 33,250 ; from talpargi or spring heads, 12,000 ; from kaṭṭe hoḷe or dams across small streams, 6,600 ; marshy lands, nearly 32,000.

The following were the productions of garden lands, and the revenue obtained from each for the same period :—Areca nut, 2¾ lakhs of rupees ; cocoanut, 1¼ lakh ; areca and cocoanut mixed, almost 4 lakhs ; tari fasal, consisting of ragi, &c., 89,000 ; plantain, 9,000 ; betel-leaf, 28,000 ; vegetables, 1½ lakh.

Coffee hálat.—It is known that very early in the present century Mysore-grown coffee was offered for sale in the bazaars, and the cultivation was general to a small extent in many portions of the Western Districts. In accordance with the invariable custom of the country, the right of the State to half the produce was always acknowledged by the cultivators, and enforced by the Native Government. In 1823, the Maharája rented the Government half-share to a Madras firm (Messrs.

Parry & Co.) for ten years, for the annual sum of Rs. 4,270, and the contract was renewed at the end of this period for a further term of five years, at an annual payment of Rs. 7,472. After the assumption of the Government by the British, the question of encouraging the cultivation of coffee, by commuting the váram or half-share for either a moderate excise duty or a light assessment on the land itself, formed the subject of correspondence. Eventually, in 1838-9, Sir Mark Cubbon, regarding the question of an increased revenue as quite subordinate to the extension of coffee cultivation, sanctioned the adoption of a hálat or excise tax of R. 1 per maund (Rs. 4 per cwt.) on all coffee grown in Mysore: a duty which at the then price of coffee, Rs. 4 per maund, was equivalent to 25 per cent. in lieu of the old váram or Government half-share of the produce. In 1843-4, in consideration of the disadvantages under which Mysore coffee entered the general market, the rate was reduced to 8 annas a maund. In 1849-50, in consequence of the heavy fall in the price of the article which had taken place during the previous ten years (coffee being then reported to be selling at little over R. 1 a maund, though it had been sold at upwards of Rs. 4 a maund in 1839-40, and as high as Rs. 6 or 7 five years earlier), the hálat was still further reduced to 4 annas a maund. At this rate it has remained ever since. Taking a fair average crop of coffee at 4 cwts. per acre, and putting the price at Rs. 5 per cwt., the tax of 4 annas a maund, at the time of its imposition, represented a land-rate of Rs. 4 per acre, or an excise tax of 20 per cent. of the produce in lieu of the old Government share of 50 per cent. In 1864, the Mysore Planters' Association presented a memorial for a reduction of the hálat, stating that the tax amounted to Rs. 6 per acre on their coffee lands. Mr. Bowring estimated that at the then price of coffee (Rs. 5 per maund), the hálat of 4 annas a maund or 5 per cent. was neither oppressive nor repressive, but was willing to reduce it to 3 annas a maund. The Government of India agreed to this if an acreage of 8 annas were paid in addition. But as a survey of the lands could not then be made for the purpose, the hálat remained unchanged. The Association next memorialized the Secretary of State, who declined to interfere.

The relative merits of the hálat or of an acreage were constant subjects of discussion for twenty years. In 1854 it was found that owing to the hálat system placing the tax upon the crop instead of upon the land, large tracts of forest were taken up nominally for coffee cultivation by people who had neither the intention nor the means to cultivate it properly, and that owing to the inferior system of management on native estates the yield was often not more than 5 maunds or $1\frac{1}{4}$ cwt. per acre. As a remedy for these abuses, a land-rate was pro-

posed, which Sir Mark Cubbon considered should be fixed at the equivalent of one-third of the gross produce, but he was averse to the change. In 1860, however, he issued rules for the more close supervision of coffee cultivation, as, though the area of estates was largely increasing, the hálat or excise collections remained stationary. He, at the same time, prescribed the present form of coffee patta, and retained the clause providing for resumption unless a certain proportion of every estate was planted up within a reasonable time, as he considered it "the only measure for checking the tendency which exists, especially in the case of European planters, to obtain a vast extent of land which they have not the slightest intention nor indeed the means of cultivating, but which they wish to occupy, either with the view of keeping other parties out, or from a desire to retain it until it rises in value and the opportunity offers of selling it piece-meal to other individuals." In 1862 Mr. Bowring recommended that the hálat should be abolished and that the land should be held free for four years, that a rental should be imposed of R. 1 per acre from the fifth to the ninth year, and Rs. 2 per acre in the tenth and thereafter. These views were carried into effect in Coorg, but not in Mysore, out of consideration for objections on the part of Native planters who held three-fourths of the coffee lands. Speaking from their point of view, Mr. Bowring remarks, "The cultivation of coffee in the jungles where it is grown being optional, no loss comparatively is entailed on the proprietor if his crop fails, for his outlay is exceedingly small, and the land so cultivated forms but a portion of his farm; whereas if he paid an acreage on the land, that land not being suitable for other crops, the failure of his coffee would fall heavily upon him and would perhaps lead to his abandoning the cultivation altogether. Large quantities of coffee are grown too on the slopes of the Baba Budan range, which being mostly jágir land, would probably be considered not amenable to land-rent."

The radical defect of the hálat system, as stated by Mr. Dalyell, is that it is practically a tax upon industry, or even a positive premium on slovenly cultivation, inasmuch as the tax is raised in exact proportion to the quantity of produce obtained from the land. An acreage system, he considered, would prevent smuggling, and as no land would be retained by a planter which he had not sufficient means to cultivate, all the tracts suitable for coffee cultivation would become available to capitalists, to the manifest advantage of the revenue as well as of the general interests of the Province.

The following statistics show the extension of coffee cultivation, and the revenue yielded by the hálat thereon, from the year 1831:—

Year.	Hálat.	Year.	Hálat.	Year.	Hálat.	Year.	Hálat.	Year.	Hálat.	Year.	Hálat.
1831-2	Rs. 4,270	1836-7	7,476	1841-2	15,205	1846-7	27,320	1851-2	25,952	1856-7	34,065
1832-3	7,472	1837-8	6,262	1842-3	21,720	1847-8	30,059	1852-3	35,952	1857-8	43,234
1833-4	7,472	1838-9	21,011	1843-4	19,779	1848-9	33,349	1853-4	31,327	1858-9	44,456
1834-5	7,476	1839-40	14,811	1844-5	23,256	1849-50	27,509	1854-5	50,204	1859-60	76,469
1835-6	7,476	1840-1	21,943	1845-6	23,006	1850-1	32,300	1855-6	32,229	1860-1	79,091
									42,711	1861-2	68,113

Year.	European gardens.			Native gardens.			Total.			Hálat from gardens.		Total Hálat, Rs.
	No.	Trees.	Acres.	No.	Trees.	Acres.	No.	Trees.	Acres.	European.	Native.	
1862-3 ...	153	24,539,247	25,244	12,285	34,252,796	38,479	12,438	58,792,043	63,723	...	...	93,393
1863-4 ...	179	25,207,886	26,010	12,915	36,116,296	40,534	13,094	61,324,182	66,544	...	...	109,463
1864-5 ...	170	29,264,534	29,117	16,770	55,105,183	54,968	16,940	84,369,717	84,085	...	...	92,791
1865-6 ...	184	30,079,228	29,930	16,607	63,012,587	60,826	16,791	93,091,815	90,756	...	...	102,781
1866-7 ...	196	31,163,546	31,310	18,191	61,163,673	64,151	18,387	92,327,219	95,461	...	...	43,199
1867-8 ...	216	32,106,883	31,468	19,622	72,612,279	67,758	19,838	104,719,162	99,226	...	...	106,357
1868-9 ...	263	32,836,197	32,042	21,275	82,345,985	75,929	21,538	115,182,182	107,971	15,118	89,289	104,407
1869-70 ...	282	33,358,998	32,533	21,563	84,569,049	78,460	21,845	117,928,047	110,993	11,802	55,176	66,978
1870-1 ...	290	34,251,025	34,232	22,191	85,604,132	78,446	22,481	119,855,157	112,678	12,581	57,194	69,775
1871-2 ...	302	34,286,009	34,267	22,330	85,745,192	78,593	22,632	120,031,201	112,860	10,162	64,786	74,948
1872-3 ...	305	34,322,009	34,310	22,759	83,435,653	76,690	23,064	117,757,662	111,000	16,607	62,554	79,161
1873-4 ...	310	34,408,990	33,175	23,409	83,707,410	78,423	23,719	118,116,400	111,598	10,415	44,563	54,978
1874-5 ...	307	34,377,590	32,631	23,564	83,779,620	78,499	23,871	118,157,210	111,130	14,611	51,724	66,335
1875-6 ...	301	34,370,560	32,638	23,942	83,677,400	80,487	24,243	118,047,960	113,125	16,529	58,044	74,573

Year.	Acres.	Hálat.	Year.	Acres.	Hálat.
1876-7 ...	115,314	Rs. 52,816	1879-80 ...	126,731	Rs. 36,712
1877-8 ...	128,438	38,108	1880-1 ...	159,165	33,611
1878-9 ...	127,693	33,453			

In 1872 the Planters' Association raised a question in regard to the validity of their title-deeds, and were informed by the Government of India, that "in the event of the transfer of the administration of the State of Mysore to Native authority, a guarantee will previously be obtained from the Native Government that all leases of land for the purpose of coffee cultivation to British subjects, whether European or Native, granted under British Administration, will be scrupulously respected as far as the terms of the lease provide, and that no regulation shall be introduced prejudicial to the interests of parties holding leases at the period of the transfer."

Under miscellaneous land revenue, the principal item was Village Amrayi or fruit-trees, which generally yielded from $\frac{3}{4}$ to over 1 lakh of rupees.

Forests.—The great source of revenue under Forests is the sale of *sandal-wood*, for which Mysore has long been celebrated, and which appears from a very early period to have been, as now, a State monopoly; next to this, the sale of *timber* yields the largest amount. Sandal-wood does not appear as a separate source of revenue in the accounts till the year 1833-4, when it realized Rs. 30,000, and in 1835-6 the unprecedented sum of Rs. 3,16,000. The annual realizations show considerable fluctuations, varying probably with the supply and the demand. During the first ten years, up to 1841-2, the receipts aggregated $13\frac{1}{2}$ lakhs, during the next ten years $16\frac{1}{2}$ lakhs, and in the next, 17 lakhs, up to the year 1861-2. The sale of timber is not shown in the accounts until the year 1857-8.

In 1863-4 the Forest Conservancy Department was introduced, and its control was gradually extended over tracts which until 1872 were under the management of the ordinary Revenue establishments. The financial results attained before and since the introduction of the new system of Forest Conservancy into Mysore were as follows:—

Decade.		Receipts, annual average.	Charges, annual average.	Surplus, annual average.
1833-4 to 1842-3	Rs.	1,46,795	18,905	1,27,890
1843-4 to 1852-3	...	1,67,456	21,773	1,45,683
1853-4 to 1862-3	...	2,08,520	32,635	1,75,885
1863-4 to 1872-3	...	3,42,403	1,10,930	2,31,473
1873-4 to 1880-1	...	4,96,539	2,02,703	2,92,129

The maximum was reached in 1880-1, when the gross receipts nearly touched 7 lakhs, and the surplus exceeded $4\frac{1}{2}$ lakhs. These results were principally due to the sales of sandal-wood, which realized

Rs. 5,18,000, the largest sum ever attained in one year. The quantity sold was 1,443 tons, at an average price of Rs. 387 per ton.

Some arrangements for the Conservancy of Forests seem to have been made in 1857, but before the formation of the Forest Department in 1863, the forests of the three Divisions were worked by the Commissioners on various systems. The only general rule was, one permitting a ryot requiring any wood but teak or sandal to fell it on payment of a seigniorage of R. 1 per cart-load. In Ashtagram, though a wood-yard had been established, traders were allowed to remove teak from the forests on a stump fee of 8 annas per tree, a most ruinous system.

The first operation of the Department, after examining the forests, was to prepare two lists of reserved trees. The first included fifteen kinds, declared to be absolutely the property of Government, to fell which, wherever growing, either ryot or trader had to obtain a license on payment of certain fixed rates. The second list contained twenty-seven kinds of trees, reserved from the trader but free to the ryot for his own use, provided they grew within his own taluq. All kinds of trees not named in these two lists were free to ryots, and might be felled by traders on payment of R. 1 a cart-load.

In 1869 new rules were brought into operation providing for the formation of State and District Forests. The first were placed under the sole management of the Forest Department, while the last were left under the Revenue authorities, with the proviso that all reserved trees —the number of which was now reduced to nine—growing on Government land, could be sold only by the Forest Department. Ryots were allowed unreserved wood and bamboos free of duty, for agricultural purposes, but paid a duty of R. 1 per cart-load for wood for house-building purposes. Traders were required to pay for trees of all kinds.

Subsequently it was found that the District authorities had not sufficient establishment to protect the Forests under their nominal charge, and that great waste had resulted from empowering shekdars to grant licenses. During 1871–2, therefore, this power was withdrawn from both Amildars and shekdars preparatory to the introduction of the District Forest scheme, by 1875–6 everywhere established, the main feature of which was the abolition of the license system and the supply of wood from depôts to all comers. Ryots paying land-rent were granted an absolute right over all trees growing on their holdings, provided the trees were planted by their ancestors or by themselves, or by former holders of the land from whom the right of occupation had been bought by the present incumbent.

In relation to the new Revenue Settlement, it was decided that the

Forest Department should be allowed one year in which to fell all reserved trees on holdings made over on assessment to private individuals. After the lapse of a year, all such trees left unremoved by the Department, to fall, with the exception of sandal-wood, to the landholder. The whole tendency, in short, of Forest legislation was to confer wider privileges on the holders of land and inámdars, and to define and enforce the rights of Government in all forests and over all trees not belonging, under certain fixed rules, to private individuals.

In 1878–9 the Forest Department was abolished as a separate Department, and the Conservator was transferred elsewhere. With three trained Forest officers for the great forests in the West, and for plantations, the control of the forests was made over to the District Revenue officers.

There were thirty-three State or reserved, and twenty-two District or unreserved forests in 1881, covering areas respectively of about 454 and 189 square miles, or altogether 643 square miles. Plantations to the number of thirty, for the growth of teak, timber, sandal, and fuel, were formed in different parts, occupying an aggregate of 4,708 acres. Village topes numbered 16,293, standing on 14,376 acres, and containing 811,306 trees; while 3,750 miles of public road had been planted with trees on both sides, at distances varying from 12 to 60 feet.

Abkari.—This branch of revenue was formerly known in Mysore under the name of Pánch Báb, or "the five items," namely, toddy, arrack, ganja, betel-leaf and tobacco. The two last were transferred, the former in 1838–9, and the latter in 1850–1, to the head of Sáyar. Up to 1862 the manufacture of toddy, arrack, and ganja was under the direct management of Government. In that year the Abkari revenue, including these three items, was temporarily farmed to contractors, prior to the introduction of the Sadar Distillery system, which came into operation in 1863–4; but it was not till 1865–6 that steps could be taken to carry its principles fully into effect in the removal of all obstructions to open competition in the manufacture of spirits.

The system referred to provides for the erection of a large enclosure, styled a Sadar Distillery, at the head-quarters of each District (and in other places, if the consumption requires it), in which all country spirits consumed in the District must be manufactured. Any person duly licensed may erect a still, at his own expense, within the enclosure, and distil as much liquor as he pleases, removing it himself, or selling it to the licensed vendors, on the sole condition that before removal the excise duty must be paid, and the liquor reduced to the authorized strength, the officers of Government confining themselves to taking such precautions as will insure no liquor being passed out of the

distillery except on these conditions, and having nothing to do with the manufacture, or the price at which the produce is sold.

The object was to secure for the consumer a superior quality of spirit, of standard strength, tested at the Government distilleries within the precincts of which it is manufactured, and to which it pays a still-head duty before removal. A restricted system of licenses for the sale of the liquor, combined with regulations for the supervision of the vendors, also tended to check the promiscuous establishment of shops. The sale of fermented toddy, the liquor commonly used by the lower classes, was also subject to the license regulations. But only the arrack portion of the Abkari revenue was worked under the Sadar Distillery system. The items of toddy and ganja were farmed out to contractors.[1]

In 1874 a general revision was made of the rates of still-head duty, which varied in different parts from 14 annas to Rs. 3, and they were raised to Rs. 2 per gallon throughout the Province, excepting in the towns of Bangalore and Mysore, in which the rates were fixed at Rs. 3 and 2½ respectively. The strength of the liquor to be issued from the distilleries was fixed at 19° below proof. But in 1875 a special arrangement for 3 years was made for the Mysore District with the Ashtagram Sugar Works at Palhalli, by which the Company contracted to manufacture liquor at 20° under proof and sell it to Government at 13 annas per gallon. The liquor was sold to vendors on the spot at Rs. 4 per gallon when intended for consumption in the town of Mysore, and at Rs. 3½ for consumption elsewhere within the District. The retail vendors were bound to sell to the public within the town of Mysore at Rs. 5 per gallon, and beyond the town at Rs. 4½.

The following figures will show the immediate operation of the new rules on the sale and consumption of arrack: in the following years the famine greatly reduced all Abkari revenue:—

Year.	No. of stills.	Gallons distilled.	Amount of still-head duty.	No. of shops.		Amount paid for licenses.	Remarks.
				Whole-sale.	Retail.		
						Rs.	
1872–3	54	252,194	Rs. 4,35,755	135	1,484	90,414	
1873–4	14	271,572	4,68,521	86	1,442	57,517*	* License fees in Bangalore transferred to Municipality.
1874–5	14	219,800	4,56,601	84	1,369	60,654	
1875–6	11	188,425	4,77,628	85	1,149	50,362†	† System of putting up retail shops to auction discontinued.

[1] Inámdars whose sanads included the right, received the revenue from arrack licenses in their inám villages.

In 1878–9 the Sadar Distillery system was discontinued in the Nandidroog Division, the exclusive right of manufacturing and selling arrack being given out on contract for 3 years.

The brewing of beer, at 3 breweries in operation in Bangalore, rapidly increased. A still-head duty of 2 annas a gallon was imposed on it in 1873–4, and the number of gallons brewed rose from 58,000 in that year to 140,000 in 1875–6, but the production afterwards fell off considerably. From April 1876 the still-head duty was raised to 4 annas per gallon, but from March 1879 it was again reduced to 2 annas.

Toddy in this Province is extracted from date-trees, which grow wild throughout the country, and in a few places from cocoanut and sago-palm trees. All date-trees growing on Government or ryotwari lands, whether occupied or unoccupied, are regarded as at the disposal of Government for Abkari purposes; but trees growing on occupied Government lands in the surveyed taluqs, and those in inám and kayamgutta villages the toddy revenue of which is granted to the holders by their sanads, are regarded as the property of the land-holder, and are therefore excluded from the contractor's lease. The exclusive right of drawing and vending the toddy was rented out to the contractors for a term, which varied in the different Divisions. The area over which such right might be exercised varied from one taluq to a District, according to the circumstances of the District and means of the contractor. Till 1872 the farming of the toddy was leased out annually in Nandidroog and Ashtagram, and for five years in Nágar, but owing to the inconvenience of frequently changing contractors, the latter period was adopted in all. Date reserves are being formed in each District on waste or unoccupied lands, demarcated for the purpose as the survey progresses. This measure is necessary to guard against the possible inconvenience of a general destruction of date-trees on their kandáyam lands by the ryots. No grant of land for cultivation is made within the limits of such reserves.

The revenue derived from a tax on spirituous liquors, ganja and toddy, appears from the accounts of 1799–1800, to have produced Kanthiraya pagodas 28,800, or Rs. 84,000 in that year, and Kanthiraya pagodas 44,290, or Rs. 1,29,179 in 1802–3. The receipts are not distinctly shown in the earlier years of British Administration, but in the accounts of 1836–7, the Abkari revenue is entered at $2\frac{1}{2}$ lakhs of rupees, and it gradually rose, producing $10\frac{3}{4}$ lakhs in 1872–3. The next two years it was $11\frac{1}{2}$ lakhs, and in 1875–6 reached $12\frac{1}{2}$ lakhs. Owing to the famine it then diminished every year till in 1879–80 it was only 8.64 lakhs. In 1880–1 it began to revive and stood at 10.67 lakhs.

Sáyar or *Customs.*—The Sáyar system in Mysore under the former Governments has already been fully described, and the mode in which it was dealt with by the British Administration down to 1854.

In the year 1860 only 24 articles were made subject to sáyar taxes, the former rates of duty as prescribed in the old *prahar patti* being entirely altered. In 1864 the number was further reduced, and the export and import duties on all articles, except areca-nut, coffee, and tobacco, between the Province of Mysore and the surrounding districts of Her Majesty's Territory were entirely and absolutely relinquished, with a view to stimulate industry and to foster the trade of the country; Sáyar being levied only on the following articles, produced within the Province and intended for home consumption :—

(1) Areca-nut, 6 annas to R. $1\frac{1}{4}$ per maund of 28lbs. ; (2) Tobacco, R. 1 to $3\frac{1}{2}$ per maund of 24lbs. ; (3) Cocoanut, dry, $7\frac{1}{2}$ annas per maund ; (4) Cocoanut, fresh, 8 annas per 100 ; (5) Cardamoms, Rs. 2 per maund ; (6) Pepper, 4 annas per maund ; (7) Betel-leaves, 1 to 2 pie per bundle of 100 leaves ; (8) Piece-goods, 5 per cent. *ad valorem* ; (9) Opium, 20 per cent. *ad valorem.* Of these, areca-nut, tobacco, pepper, cardamoms and opium were liable to the duty both when imported and when exported.

In 1875 the duty on piece-goods of local manufacture was abolished permanently, and that on pepper temporarily. The excise duty on areca-nut and on tobacco, assorted with or without stalks, was fixed at a uniform rate of 12 annas per maund, and the duty on tobacco stalks abolished. The rate for betel-leaves was fixed at 1 pie per bundle.

Sáyar duties appeared in the accounts of 1799–1800 at the respectable sum of Kanthiraya pagodas 2,26,000 or Rs. 6,59,166, and in those of 1802–3 Kanthiraya pagodas 2,57,000 or Rs. 7,49,583. They rose to a sum of Rs. 10,45,000 in the year 1846–7. The bulk of the numerous petty taxes which were either abolished or modified between the years 1831 and 1854 were classed in the accounts as Sáyar. It has been seen that the gross annual amount thus remitted was $10\frac{3}{4}$ lakhs. But we still find that the Sáyar collections, which had never exceeded $10\frac{1}{2}$ lakhs in any one year during the existence of those taxes, were not seriously diminished after their removal. On the contrary, the Sáyar receipts amounted to $9\frac{1}{2}$ lakhs annually in the years 1856–7 and 1859–60, to $10\frac{1}{2}$ lakhs in the next year, and to $11\frac{3}{4}$ in 1861–2. In 1862–3 they produced Rs. 10,46,000 only, owing to an unfavourable season for the supari and tobacco crops. In the following year they again reached Rs. 11,33,000. With the customs duties abrogated in 1864, a vast horde of petty customs establishments, numbering 1,800 men on trifling stipends, were dispensed with,

reducing the cost of collection from 1 lakh to about Rs. 40,000 annually. Consequent on these measures, Sáyar being levied as an excise on only eight articles of home produce, the Sáyar revenue, as may have been expected, fell to Rs. 8,88,000 in 1865–6, and to 7 lakhs in 1867–8. It, however, gradually revived, and amounted to $7\frac{3}{4}$ lakhs in 1871–2, and to more than $9\frac{1}{4}$ in 1872–3. Owing to unfavourable seasons, it fell a little below this in the next year, and in 1874–5 to $8\frac{1}{4}$ lakhs. The abolition and reduction of duties in that year still further reduced the Sáyar collections, which for 1875–6 stood at a little below $6\frac{1}{2}$ lakhs. To this total areca-nut contributed $4\frac{1}{2}$ lakhs and tobacco nearly a lakh.

After this the collections fell every year, till in 1880–1 they amounted to less than $3\frac{1}{2}$ lakhs. This was due to the policy of Government in gradually abolishing the duties with a view to benefiting the people. Those on piece-goods and pepper were taken off in 1875–6 and that on opium transferred to Abkari. In 1879–80 the Sáyar duties were virtually abolished as a State tax. In their stead octroi collections were authorized in municipal towns, a moiety being credited to the State and the other moiety being retained by the municipalities which made the collections.

Mohatarfa or *Assessed Taxes.*—Under the former Governments of Mysore, various taxes were levied on castes and professions, besides taxes on houses, looms, shops, and oil-mills, and included under the general head of Mohatarfa. In the year 1860 a general revision of the Mohatarfa taxes took place, when most of them were abolished, and five were retained, *viz.*, a tax on houses, on looms, on shops, on oil-mills, and on ploughs. A tax on carts was introduced in 1870. In the year 1871 the plough-tax was abolished, being superseded by the local cess. Mohatarfa was then levied only on the remaining items. These taxes did not now directly touch the ryot, but were confined to other classes. Special exemptions from house-tax were, however, accorded to Brahmans, Musalmans and certain officials, in accordance with ancient usage.

From 1840 up to the year 1854–5 the receipts amounted to $6\frac{1}{2}$ lakhs per annum, but during that period they included some items afterwards classed under other heads of accounts, and several taxes which no longer exist. After the abolition of these, the collections fluctuated between 4 and 5 lakhs from the year 1856–7 to 1861–2, when they amounted to Rs. 4,79,000. In 1862–3 they declined still further, to Rs. 3,52,000. In 1872–3 they were Rs. 3,22,000, exclusive of the cart-tax, which was levied in 1870. The decline was partly attributable to the alienation, for municipal purposes, of the Mohatarfa

taxes levied in the towns. The receipts, which stood at over 3½ lakhs, fell in 1878-9 to 2¾, and in 1880-1 were 2½ lakhs. The famine caused a general desertion of houses and looms, and even the dismantling of many to obtain food. But in 1879-80 the items were revised in Municipal towns in order to reduce to one item the separate levy made for Government and for municipal purposes. The rates vary from As. 8 to Rs. 12 per annum on each house, Rs. 2 to Rs. 30 per shop, Rs. 1 to Rs. 8 per loom, Rs. 3 to Rs. 20 per oil-mill, Rs. 2 per cart owned by the non-agricultural classes.

The following are details of the amounts realized in 1880-1 :—

	In Villages.	Moiety from Municipal towns.	Total.
Houses	92,856	21,860	1,14,716
Shops	49,868	14,648	64,516
Looms	37,550	3,475	41,025
Oil-mills	8,534	1,579	10,113
Carts	19,528	2 666	22,194
Miscellaneous ...	262	—	262
Total Rs.	2,08,598	44,228	2,52,826

Certain classes, who from time immemorial have enjoyed immunity from taxation, were exempted from payment of the house-tax, except in municipal towns, where they were required to pay the municipal tax like other people. The number of houses before the famine was 1,027,268, of which the number claiming exemption was 890,000. Of these 640,000 belonged to the agricultural classes, 150,000 to Brahmans, Musalmans and Rajbindes, 46,000 to headmen of towns and villages, and the remainder were houses which paid the shop, loom, or oil-mill tax. There were 28,379 shops, 39,014 looms, 3,300 oil-mills, and 14,679 carts. Of the taxable houses only 17 were terraced, 15,000 were tiled, 25,000 mud-roofed, and the rest thatched.

Salt.—The revenue under this head was derived from fees levied on pans for the manufacture of earth-salt. This article was consumed by some of the poorer classes of inhabitants throughout Mysore, and by most of the people in Chitaldroog District. It is also given to cattle. But the bulk of the people consume the marine salt imported from the sea-coast of the Madras Presidency. In 1873-4 the manufacture of earth-salt within five miles of the frontier, and the exportation of the article to Her Majesty's territories, were prohibited. The number of pans in 1880-1 was 2,812. In this year the farming-out of the manufacture was abandoned in favour of the issue of licenses for each pan worked, at rates varying from one anna to Rs. 5 per pan, according to locality.

Stamps.—Stamp duties existed in Mysore on the assumption of the government in 1831–2, but they were levied on a primitive system, moderate in its rates and limited in its incidence. Between the years 1831 and 1861 the annual yield was between Rs. 6,000 and 9,000, in two years only it reached Rs. 10,000, and in another Rs. 15,000. In 1861–2 the old system produced its maximum revenue, which was but Rs. 19,900. During these years court fees were paid chiefly in coin, and were mixed in the accounts with other receipts. In 1862–3 there was a revision of the local regulations, which raised the stamp revenue to Rs. 71,628 in that year, to Rs. 1,57,000 in the next, and to Rs. 2,41,000 in 1864–5. In 1865 the Indian Stamp Act was introduced, and the revenue has since made rapid progress, reaching 4¼ lakhs in 1869–70. After that year the amount realized from court-fee stamps was credited to the head Law and Justice, but in 1875–6 the former practice was restored.

Post Office.—For many years the Anche or Local Post appears to have been almost wholly devoted to the conveyance of official despatches. The growth of the postal receipts was slow, but steady. During 1833 to 1843 they rose from Rs. 2,000 to Rs. 6,000, in 1853 to Rs. 12,000, in 1863 to Rs. 30,000. In 1872–3, notwithstanding a reduction of postal rates in accordance with the British India scale, the revenue was Rs. 44,000. The cost of the Department, which had always exceeded its receipts—public despatches being carried free of postage in any shape—was enhanced from year to year, but did not grow so rapidly as the income from private correspondence. The establishment cost Rs. 33,000 in the year 1833; Rs. 44,000 in 1843; Rs. 49,000 in 1853; Rs. 95,000 in 1863; and Rs. 1,51,000 in 1873.

In 1875–6 the number of receiving houses was 152, the postal lines traversed by runners aggregated 2,312 miles. No postage-stamps were in use, but Rs. 50,000 was realized from payments on private letters. The correspondence passed through the Anche rose from 1½ million in 1861–2 to 2¾ millions. In 1875–6 postage was paid on 1¼ millions of letters, 50,000 newspapers, and 9,601 parcels. The official correspondence, carried free of charge, consisted of 1¼ million of letters, 30,000 packets, and 26,000 gazettes. From 1872–3 an arrangement was entered into with the Imperial Post Office to distribute by Anche all unpaid letters addressed to Mysore, the latter retaining half the amount of postage due on all except overland letters from Europe, for which latter the full charge was repaid.

Local Funds.—By 1871–2 an important change was effected in the mode of raising an income for local purposes, by the abolition of the ancient Plough-tax and the introduction of a Local Cess. The Mysore

Local Funds consisted of a cess levied at the rate of one anna in the rupee of the land assessment in settled taluqs, and half an anna in unsettled taluqs, as well as of half an anna upon the collections realized from Sáyar, Abkari, forest produce, coffee hálat, and salt pans. In towns where there were no municipalities, the revenue derived under the operation of the Cattle Trespass Act, the rent from ferry contracts, and certain other miscellaneous items, were also exhibited under the head of local funds. In 1879–80 one anna in the rupee on the assessment was levied in unsurveyed taluqs, instead of half an anna as before.

Out of the total collections of the Local Fund cess, 24 per cent. were appropriated to education, for the support of village schools, and (with the exception noted below) 76 per cent. were credited to the local fund account of the District in which they were raised, under the name of District Local Funds, to be applied to the maintenance of roads, &c. Out of the collections levied on abkari, supari (except in Shimoga and Kadur Districts), and miscellaneous items, the 76 per cent. were shown in a separate account, and were held in deposit in the Huzur Treasury under the name of Local Funds General, which were at the disposal of the Chief Commissioner for expenditure where he deemed that a special grant was called for.

An irrigation cess, at one anna in the rupee of the assessment upon wet lands, Sarkar or inám, was also levied in the surveyed taluqs and credited to the local fund revenues to meet the cost of up-keep of irrigation works. But in 1873–4 the separate levy of this cess was abolished, the amount being merged in the ordinary assessment on wet land; and at the settlement of each taluq an equivalent lump sum is set apart out of the annual revenue of the taluq to form a District Irrigation Fund.

The revenue credited to Local Funds since 1871–2 was as follows:—

1871–2	Rs. 3,47,205	1876–7	Rs. 4,85,451
1872–3	4,36,845	1877–8	4,94,574
1873–4	4,59,979	1878–9	5,49,520
1874–5	4,75,207	1879–80	6,86,724
1875–6	5,12,063	1880–1	6,90,082

Municipal Funds.—Municipal Committees were first experimentally formed in 1862, at Bangalore and Mysore. The experiment proved a success, and by 1864–5 each of the eight District head-quarter stations possessed a Municipal Committee. The measure was next extended to Taluq kasbas, and eventually to other large trading towns and villages. The District head-quarter municipalities were the most

important, the municipal proceedings in minor towns being at first limited to conservancy operations, in which, however, material improvement was visible.

In Bangalore, where the municipal operations were conducted on a large scale, and their control and direction required special attention and involved much labour, the President was paid Rs. 700 per mensem, which was defrayed by the municipalities of the Cantonment and Town of Bangalore, in the proportion of two-thirds and one-third respectively. In the other District head-quarter municipalities, no salary was attached to the office of the President, a selected Government official of the station undertaking the charge in addition to his other duties. In all of these municipalities, regularly organized Boards were formed, consisting of the most influential European and Native members of the community. In the smaller towns, where it was found difficult to constitute regular Boards, municipal regulations were with great advantage introduced and enforced through the agency of the revenue officers.

On the 1st April 1871 a new Code of Municipal Regulations for the Cantonment and Town of Bangalore was introduced. These regulations provided for the appointment of Commissioners, for making better provision for the police, conservancy and improvement of the Cantonment and Town, and for enabling the Commissioners to levy taxes, tolls, town dues and rates therein. Under the operation of these regulations, a material change was effected in the composition of the Board. In substitution of the previous arrangements for the selection of members, the Cantonment was divided into six divisions or wards, and the Town into three, from each of which two persons residing therein were nominated by Government to be Municipal Commissioners. In addition to these the Board was further composed of six *ex-officio* members, specially selected to represent all branches of the official community, the number being restricted to a third of the total number of the Commissioners.

In the year 1872–3 the revenue derived from the sale of licenses for retail vend of arrack in Bangalore was transferred to the Municipality, with a view to increase its revenues, and to prevent the number of shops multiplying indiscriminately beyond the actual requirements of the place. For a better administration of the abkari retail vend within the Town and Cantonment municipal limits, a Bench of Magistrates, composed of the Deputy Commissioner, the Cantonment Magistrate and the President of the Municipality, was constituted, the last of the above-mentioned officers being vested with the powers of a Justice of the Peace. The decree of the Bench of Magistrates was considered final in

matters relating to the allotment and renewal of licenses and disposal of complaints.

The following were the taxes authorized to be levied by the Municipalities :—1. An octroi or tax on articles brought within municipal limits for consumption and use therein. 2. Tax on houses, buildings and lands. 3. Tax on professions and trades. 4. Tax on carriages, carts, &c. 5. Tolls on carriages, carts, &c. 6. Ferries. 7. Tax on licenses. 8. Tax on bricks and tiles. The octroi was the most productive of all the taxes. Next in order stood the house-tax and tax on professions and trades. In the Nandidroog Division (except the Town and Cantonment of Bangalore), the house-tax was levied in substitution for the octroi in all the municipalities of the Bangalore and Kolar Districts, and in four places in the Túmkúr District, *viz.*: Tiptur, Bellavi, Gubbi and Túmkúr, in the first two of which great marts are held weekly, while the third is the most important entrepôt for the Malnad areca-nut produce, and the fourth is the head-quarters of the District. Octroi was still levied in the other towns of the Túmkúr District, but the house-tax was regarded as furnishing a more certain source of income, not being subject to the fluctuations of trade like the octroi, or liable to misappropriation by the collectors. In the Ashtagram Division, to avoid pressure upon the poorer classes, grain, the staple food of the people, was exempted from the tax. The number of taxable articles under octroi amounted to 20 in Mysore, and 15 in Seringapatam and Húnsúr ; at Hassan the chief article taxed was tobacco. There was also an *ad valorem* duty at 5 per cent. on the sale, at these places, of country cloth manufactured elsewhere than in Mysore. The *ad valorem* duty on piece-goods formed an appreciable portion of the octroi duty generally, but especially in Shimoga and Tarikere. But as the pressure of this tax told more on the poorer classes than on the rich, its levy was under inquiry.

In the town of Mysore, all sáyar collections were transferred to the municipality so far back as 1863. The mohatarfa collections were surrendered to the municipality of Seringapatam on condition of their maintaining their own Police ; and were afterwards surrendered on the same conditions to the municipalities of Bangalore, Kolar, Shimoga, Chitaldroog and Chikmagalur, the latter also defraying the cost of the Government schools in the town. This tax had been carefully revised, and extended to the privileged classes who had hitherto been exempt, in accordance with the annexed schedule ; the last three rates being specially sanctioned for the town of Mysore.

		Rs.		Rs.	Rs.			Rs.		Rs.	Rs.
House valued below		—		50	½	House valued from		1,000	to	1,500	7
Do.	from	50	to	100	1	Do.	,,	1,500	to	3,000	9
Do.	,,	100	to	200	2	Do.	,,	3,000	to	5,000	12
Do.	,,	200	to	300	3	Do.	,,	5,000	to	6,000	15
Do.	,,	300	to	500	4	Do.	,,	6,000	to	10,000	30
Do.	,,	500	to	700	5	Do.	,,	10,000	to	20,000	60
Do.	,,	700	to	1,000	6	above		—		20,000	120

The total amount of municipal revenue in 1880–1 was 4·21 lakhs of rupees. Of this sum Rs. 1,63,070 were obtained from octroi, Rs. 1,05,100 from house-tax, Rs. 42,712 from licenses on trades, Rs. 44,948 from mohatarfa, Rs. 18,374 from rents, Rs. 1,557 from fines, Rs. 33,525 from miscellaneous items, and Rs. 11,870 from grants-in-aid.

There were at this time 84 Municipalities, distributed in the Districts as stated in the margin. There were 341 members composing the various Municipal Boards, 89 of whom were *ex-officio*, and 252 nominated members.

Bangalore .	17	Hassan ...	11
Kolar ...	11	Shimoga .	10
Túmkúr ...	11	Kadur ...	7
Mysore ...	11	Chitaldroog	6

The following figures exhibit the growth of municipal institutions and funds since their first establishment: during the famine years the details are not given :—

Year.	Bangalore.		Mysore.	District Head-quarters.		Other Towns.		Total Receipts.	Expenditure.
	Canton-ment.	Town.		No.	Amount.	No.	Amount.		
1862–3	37,509	21,681	23,369	...	...	...	...	82,559	...
1863–4	35,000	20,350	28,713	...	...	...	...	84,063	39,302
1864–5	58,793	19,585	33,992	...	...	...	...	1,12,370	93,900
1865–6	71,688	26,322	35,190	6	16,087	...	...	1,49,287	1,44,976
1866–7	58,034	23,330	31,387	6	12,078	...	...	1,24,829	1,35,150
1867–8	60,090	26,451	41,612	6	13,761	48	10,672	1,52,586	1,41,818
1868–9	62,561	48,751	30,422	6	16,297	48	17,128	1,75,159	1,49.061
1869–70	69,969	43,010	28,106	6	20,286	48	21,352	1,82,723	1,97,030
1870–1	56,776	52,867	47,217	6	21,520	48	28,737	2,07,117	2,08,927
1871–2	92,617	59,332	71,168	6	28,189	48	37,835	2,89,141	2,59,186
1872–3	1,18,535	61,084	76,115	6	32,930	48	51,600	3,40,264	3,01,567
1873–4	1,19,179	61,930	80,250	6	34,398	67	57,432	3,53,189	3,39,134
1874–5	1,18,257	63,440	85,076	6	41,366	67	56,729	3,64,868	3.70,448
1875–6	1,22,737	64,769	82,775	6	45,218	67	60,019	3,75,518	3,67,370
1876–7	...	...	...	6	...	67	...	3,65,109	4,06,049
1877–8	...	...	...	6	...	67	...	3,36,606	3,52,381
1878–9	...	...	...	6	...	67	...	3,61,499	3,48,851
1879–80	1,25,758	61,627	...	6	2,05,383	68	...	3,92,768	3,52,285
1880–1	1,44,670	59,993	...	6	2,16,473	75	...	4,21,136	3,82,158

State Expenditure.—While the Mysore revenues expanded under British management, as described in the preceding pages, the expenditure rose rapidly with the reforms introduced in all departments of the Administration, more especially since 1862. Notwithstanding the exceptional demands during the first 25 years on account of the debts of the State and its ruler, the accounts show that from 1831 to the close of the year 1861–2, there was a surplus of receipts amounting to Rs. 1,00,91,000, or, excluding the receipts and payments on account

of the loan from the British Government and the Maharája's debts, Rs. 152¾ lakhs. The average annual revenues and charges, without those exceptional items, were as follows during the respective decades from 1832–3 to 1861–2 :—

Decade.	Average Annual Receipts.	Average Annual Expenditure.	Average Annual Surplus.
1832–3 to 1841–2	Rs. 70,08,000	69,21,000	87,000
1842–3 to 1851–2	76,61,000	68,91,000	7.70,000
1852–3 to 1861–2	86,54,000	79,92,000	6,62,000

The increase of expenditure since 1852–3 will be made intelligible by the following comparison of the charges for that year and 1861–2, which was the last year of the former régime ; next 1863–4, when the administration had been fully reorganized ; 1872–3, completing the second decade ; and 1875–6, the last year before the famine.

The figures of the immediately succeeding years are of no use for comparison, from their being so seriously affected, first, by abnormal expenditure on account of the famine, and next, even when reductions had been carried out in all departments, by the large sums paid on account of compensation, pensions, and gratuities. But the approximate figures for 1880–1 are given, from which it will be seen that, excluding the special Railway and Pension charges (15·65 and 2·71 lakhs respectively), the expenditure had gone down to 101 lakhs, and even this included 4 lakhs for interest on debt, and other exceptional items, such as the Maharája's installation, census, etc.

Head of Charge.	1852–3.	1861–2.	1863–4.	1872–3.	1875–6.	1880–1.
Civil charges of Administration ...	18,56,000	25,99,000	32,78,000	40,34,000	47.44,000	45,85,000
Local Force ...	10,04,000	10,46,000	10,80,000	10,86,000	8,60,000	7,54,000
Religious and charitable Institutions	2,99,000	3,02,000	2,61,000	2,83,000	2,83,000	2,75,000
Subsidy to British Government ...	24,50,000	24,50,000	24,50,000	24,50,000	24,50,000	24,50,000
Maharája's stipend and share of Revenue ...	14,98,000	15,11,000	14,03,000	8,54,000*	8,80,000	10,00,000
Public Works Expenditure ...	4,64,000	11,64,000	13,59,000	14,24,000	21,97,000	10,75,000
Total Administration Charges ...	75,71,000	90,72,000	98,31,000	1,01,31,000	1,14,14,000	1,01,39,000

* Palace charges after the Maharája's death.

The analysis of Civil charges, as under, will show the departments under which increase mainly arose and the subsequent reductions:—

Head.	1852-3.	1861-2.	1863-4.	1872-3.	1875-6.	1880-1.
General charges. Rs.	2,34,000	3,50,000	3,35,000	3,25,000	3,65,000	24,62,000 (General charges and Revenue and Judicial)
Revenue and Judicial	8,19,000	11,81,000	15,38,000	16,20,000	17,37,000	
Revenue Survey ...	...	...	38,000	2,47,000	2,89,000	245,000
Inám Commission ...	...	...	...	85,000	75,000	41,000
Sáyar and Abkari ...	2,08,000	2,60,000	97,000	59,000	72,000	14,000
Forests	18,000	53,000	32,000	1,86,000	2,35,000	83,600
Stamps	...	...	43,000	13,000	13,000	13,600
Post Office	48,000	95,000	95,000	1,51,000	1,60,000	1,07,400
Jails	16,000	25,000	1,06,000	1,10,000	1,23,000	1,66,600
Registration ...	...	...	...	17,000	20,000	24,000
Police	3,25,000	3,94,000	4,97,000	4,45,000	5,70,000	4,85,000
Political Pensions ...	82,000	73,000	58,000	66,000	64,000	3,13,800 (Political Pensions and Service Pensions and Gratuities)
Service Pensions and Gratuities ...	1,000	14,000	86,000	1,14,000	1,79,000	
Medical Department	35,000	64,000	86,000	1,30,000	1,49,000	1,58,000
Education	6,000	43,000	73,000	2,45,000	2,45,000	1,62,000
Miscellaneous ...	64,000	47,000	1,90,000	1,81,000	3,51,000	1,46,000
Refunds of Revenue.	...	...	4,000	40,000	97,000	...

From the review now given of the finances of Mysore, it will be apparent that during the first 45 years of British rule, a period of profound peace, the country having been spared the convulsions of 1857, the revenues doubled from 55 lakhs to 110 lakhs, and the administrative charges, which were about 55 lakhs in the earlier years, rose to over double that. When the British assumed the government in 1831, they found the State encumbered with debts, the liquidation of which cost $87\frac{3}{4}$ lakhs during the first 25 years, and the revenues had to bear a further charge of $39\frac{1}{2}$ lakhs between 1864 and 1869, on account of fresh debts contracted by the Maharája. The State was now free from such liabilities, with a steadily improving income, an ample cash balance, and an invested surplus in 1875-6 of 63 lakhs. But the famine which ensued completely reversed the financial prospects for the time, and though in 1878-9 the revenue reached the abnormal sum of 121 lakhs, much of this was due to collection of arrears, and the regular revenue did not exceed 104 lakhs at the highest. The invested surplus had disappeared, and in its place a debt of 80 lakhs had been incurred. The outlook therefore, which had recently been o fair, was far from encouraging on the eve of the Rendition.

LAW AND JUSTICE

Legislation.—Mysore being a Native State, the Legislative enactments of the Government of India do not necessarily apply to it as they do in British India. When, therefore, the extension to Mysore of any Legislative enactment of the Government of India, or of the Governments of Madras, Bengal or Bombay, is considered necessary, it is usual to make a special application to the Governor-General in Council with this object.

The following is a list of the Acts of the Government of India which had been extended to Mysore either in whole or in part up to 1880–1.

No. and Year of Act.	Name or subject of Act.	Date of Extension to Mysore.
XX of 1847	Copyright of Books	1867
IX of 1850	Small Cause Courts	1863
XIX of 1850	Binding of Apprentices	1875
XVIII of 1854	Railway Act	1864
XXI of 1856	Abkari Revenue	1864
VI of 1857	Acquisition of Land for public purposes	1867
VIII of 1859	Civil Procedure Code	1869
XIV of 1859	Limitation of Suits, Section 15	1875
XIII of 1859	Breach of Contract	1864
XXVII of 1860	Collection of Debts on Succession	1868
XXXI of 1860	Sale of Arms and Ammunition	1868
XLV of 1860	Indian Penal Code	1862
V of 1861	Regulation of Police	1866
XXIII of 1861	To amend the Civil Procedure Code	1869
XXV of 1861	Criminal Procedure Code	1862
XXIX of 1861	Articles of War	1868
X of 1862	Indian Stamp Act	1865
VI of 1864	Whipping Act	1864
XIII of 1864	Emigration Act	1865
V of 1865	Marriages of Christians	1865
X of 1865	Indian Succession Act	1868
XI of 1865	Mofussil Small Cause Courts	1866
V of 1866	Bills of Exchange	1868
VI of 1866	Arms and Ammunition, &c.	1868
X of 1866	Trading Companies	1868
XIV of 1866	Post Offices	1867
XX of 1866	Registration of Assurances	1866
III of 1867	Public gambling	1867
VII of 1867	Purchase of Soldiers' Articles	1871
XXIV of 1867	Administrator-General's Act	
XXV of 1867	Regulation of Printing Presses, &c.	1867
XXXII of 1867	Conferring on Chief Commissioner powers of a Local Government	1867
I of 1868	General Clauses Act	1878
XXVII of 1868	Limitation of Indian Registration Act	1868
II of 1869	Justices of the Peace	
VIII of 1869	Criminal Procedure Code amended	1869
XVIII of 1869	General Stamp Act	1870
	Rules for the Forest Department of Mysore ...	1869
XXI of 1869	European Vagrancy	1871
XX of 1869	Indian Volunteer Act	1870

No. and Year of Act.	Name or subject of Act.	Date of Extension to Mysore.
VII of 1870	Court Fees	1870
X of 1870	Land Acquisition	1870
XXIII of 1870	Indian Coinage	1870
XXVI of 1870	Prisons' Act	1879
XXVII of 1870	To amend the Indian Penal Code	1871
	Code of Municipal Regulations	1871
I of 1871	Cattle Trespass	1872
	Custody and Guardianship of Minors, Idiots, &c.	1872
VIII of 1871	Indian Registration Act	1871
IX of 1871	Indian Limitation Act	1871
	Rules under the Contagious Diseases Act ...	1871
X of 1871	Excise Act	1879
XXIII of 1871	Pensions	1873
XXV of 1871	To amend the Railway Act	1871
XXVI of 1871	Land Improvement Act	1878
I of 1872	Indian Evidence Act	1872
IX of 1872	Indian Contract Act	1878
X of 1872	Code of Criminal Procedure	1872
XI of 1872	Foreign Jurisdiction and Extradition Act ...	1872
XV of 1872	Indian Christian Marriages	1876
XVIII of 1872	Indian Evidence Act amended	1872
XIX of 1872	To amend the Definition of Coin in Indian Penal Code	1872
V of 1873	Government Savings Bank	1873
X of 1873	The Oaths Act	1876
XI of 1874	Criminal Procedure Code Amendment Act ...	1874
XXI of 1876	To amend Land Improvement Act	1878
I of 1877	Specific Relief Act...	1878
III of 1877	Indian Registration Act	1877
X of 1877	Civil Procedure Code	1878
XV of 1877	Indian Limitation Act	1877
I of 1878	Opium Act	1879
XI of 1878	Indian Arms Act	1879
I of 1879	General Stamp Act	1879
IV of 1879	Indian Railway Act	1879
XII of 1879	Amending Civil Procedure Code, Registration and Limitation Acts	1879
XIV of 1880	Indian Census Act	1880

The following Acts of the Madras, Bombay, and Bengal Legislatures have also been extended to Mysore :—

No. and Year of Act.	Name or Subject of Act.	Date of Extension to Mysore.
	Madras.	
I of 1863	Madras Local Act	1865
III of 1869	To empower Revenue Officers to summon ...	1869
I of 1873	Wild Elephants	1874
VIII of 1878	Coffee Stealing Prevention Act	1879
	Bombay.	
I of 1865	Survey, Demarcation, Assessment and Administration of Lands	1869
IV of 1868	Amended Bombay Act I. of 1865	1869
	Bengal.	
I of 1869	Prevention of Cruelty to Animals	1877

Courts.—The following statement exhibits the gradation and numbers of the Courts of Justice as existing in 1876, with the magisterial powers and limits of jurisdiction of the several judicial officers:—

Courts.	Judicial Powers.	Original. Criminal.	Original. Civil.	Appeal. Criminal.	Appeal. Civil.	Executive or other functions of same Officers.
Peshkars ...	Magistrates of the 3rd class ...	20	...	...	...	All duties entrusted to them by the Amildars, and in their absence all duties connected with their office. Huliyurdroog Peshkar was also a Sub-Registrar.
Sheristadars..	Do.	18	...	...	...	Revenue and ministerial functions.
Amildars ...	Do. except Chamrajnagar and Bangalore Amildars, who are Magistrates of the 2nd class.	68	...	...	...	General supervision of Revenue, Muzrayi, Registration, Municipalities, &c., within their respective taluqs.
Munsiffs ...	Dispose of Civil suits up to Rs. 300 in value; also have Small Cause powers up to Rs. 20, but Mysore Munsiff up to Rs. 50.	...	22	...	...	Turvekere Munsiff was also a Sub-Registrar.
Sar-Amin ...	Magistrate of the 2nd class...	1	...	...	...	Sub-Registrar for Bangalore Cantonment and Executive Officer of the Municipal Board.
Town and Cantonment Magistrates.	Magistrates of the 1st Class. Bangalore Town and Cantonment Magistrate hears appeals from decisions of the Sar Amin and the Magistrate of the Pete in Criminal cases	2	...	1	...	Mysore Town Magistrate superintended the Mysore Town Police and was President of the Municipal Board.
Judicial Assistants ...	Dispose of original Civil suits from Rs. 300 to Rs. 5,000, with appellate powers in cases transferred to them by the Deputy Commissioners. Also Small Cause powers up to Rs. 300 in addition in Headquarters ...	...	8	...	8	In charge of District Jail and Treasury.
Small Cause Court, Bangalore.	Small Cause jurisdiction up to Rs. 1,000. The Registrar up to Rs. 20	...	1	...	...	
Jagirdar of Yelandur.	Magistrate of the 1st class ...	1	...	...	...	The Jagirdar was then an Assistant Commissioner.
Assistant Commissioners.	Magistrates of the 2nd class.	7	...	...	...	Generally assisting the Deputy Commissioners in all branches of duties excepting Civil.
Do. ...	Magistrates of the 1st class. Dispose of appeals from decisions of 3rd class Magistrates in Criminal cases	10	...	10	...	

Courts.	Judicial Powers.	Original. Crimi-nal.	Original. Civil.	Appeal. Crimi-nal.	Appeal. Civil.	Executive or other functions of same Officers.
Deputy Commissioners..	Powers of a Magistrate of a District with enhanced powers under Section 36 of Act X of 1872. Dispose of original Civil suits from Rs. 5,000 to Rs. 10,000 in value. Hear appeals from decisions of Munsiffs in Civil cases, and of 2nd and 3rd class Magistrates in Criminal cases	8	8	8	8	General supervision of Revenue, Muzrayi, Registration, Municipalities, Public Works and Police.
Commissioners... ...	Powers of a Sessions Judge. Dispose of Civil suits above Rs. 10,000 in value. Hear appeals from the decisions of the Judicial Assistants in Civil cases, and of the 1st class and District Magistrates in Criminal cases	3	3	3	3	General supervision in the Division. The Commissioner of Ashtagram was also Sessions Judge of Coorg.
Judicial Commissioner...	Powers of a High Court, and original jurisdiction in granting probates and letters of administration	...	...	1	1	Also Inspector General of Jails and Police in Mysore and Coorg, and Judicial Commissioner of Coorg.

The system of Judicature was based upon the administrative regulations introduced in 1862–3, as previously described. But in 1869 revised Rules of Civil Procedure were introduced, and in 1872 the new Criminal Procedure Code ; and on these the practice, functions and powers of the existing tribunals, as above set forth, were more immediately founded. In 1866 appeals from the decisions of Assistant Commissioners to the Deputy Commissioners were abolished, such appeals lying to the Commissioners of Divisions. In 1867 rules were enforced for oral hearing and written judgments in appeal cases, and for the enrolment of pleaders. The following remarks on these changes are by Mr. J. R. Kindersley, officiating at that time as Judicial Commissioner :—

"The most important alteration which has been lately made in the Civil Procedure in Mysore has been the strict enforcement from the commencement of 1867 of these two rules : 1st, that no decree should ever be passed on appeal without giving the parties an opportunity of appearing on an appointed day ; 2nd, that the decision should invariably be written by the judge. Formerly, parties to appeal were sometimes heard and sometimes not. The courts were not generally built so as to be very accessible ; no great regularity was observed in hearing appeals on fixed days ; and it was the interest of the subordinate officials to discourage the personal attendance

of suitors ; while pleaders were admitted only by permission of the judges. The demoralizing effects of a system which placed it in the power of subordinate officials to make representations behind the backs of the parties need not be fully described. It became the practice in several of the superior courts for the facts of a case to be stated by a subordinate public servant, and occasionally I have found the decision written by such a person, and only signed by the judge."

In 1873 was commenced, as a step towards the separation of judicial and executive functions, the formation of Munsiffs' Courts in the Nandidroog Division, which relieved the Amildars of jurisdiction in civil cases and enabled them to devote more attention to their revenue duties, now becoming increasingly heavy. The measure was extended to Ashtagram and Nagar in 1875, the expense of the new establishments being met by reducing the number of taluqs.

The civil powers of Deputy Commissioners had been gradually contracted, when in 1879 the entire separation of judicial and executive functions was completed. Commissioners of Divisions ceased to exercise any revenue powers, and in their place, as Civil Judges, were constituted the Courts of the District Judges, who had unlimited original pecuniary jurisdiction and heard appeals from Subordinate Judges. The latter took the place of Judicial Assistant Commissioners, and formed the next Court in grade below the District Judges, the intermediate Civil Court of the Deputy Commissioner being abolished. The limit of the original pecuniary jurisdiction of the Subordinate Judge was Rs. 5,000, as was the case before with the Judicial Assistant, but the Munsiff's having been raised from Rs. 300 to 500, that of the Subordinate Judge began at the latter figure. Where they had Small Cause powers too, the limit thereof was now Rs. 500 in place of Rs. 300, and these Judges now heard appeals from Munsiffs direct instead of upon reference by the Deputy Commissioner. Where the Munsiffs had Small Cause powers, the limit was Rs. 50 in place of Rs. 20. The only other change was in reducing the jurisdiction of the Bangalore Small Cause Court, the Judge of which was Town and Cantonment Magistrate for Bangalore as well, from Rs. 1,000 to Rs. 500.

But as it was in the Courts of the taluq magistrates that dismissals and acquittals, including withdrawals of the complaint, were so numerous, and a large number of petty cases which can be legally compromised and withdrawn were entertained which should never have been brought on the file, the Peshkars and Sheristadars, wherever possible, were having their powers withdrawn, leaving the Munsiff and the Amildar to do the magisterial work in the taluqs.

In 1880 the final step was taken of making the Munsiffs the only

taluq magistrates. The Amildar still retained his magisterial powers, but as he also had charge of the Police it would not be fitting that he should inquire magisterially into cases the Police had already investigated. Nor could his subordinates, the Peshkars and Sheristadars, well take these cases. On this account Munsiffs were invested with powers, and those of Sheristadars were withdrawn, while in the reorganization of establishments the office of Peshkar was abolished.

Rules were framed for regulating the qualification and admission of advocates and pleaders. Instructions were issued for opening the work of the courts at 11 o'clock in the forenoon, and for apportioning the business to different days of the week, so as to ensure, as far as rule can do, punctuality and regularity in the proceedings of the courts. The sums to be entered in the decrees of the courts on advocates' and pleaders' fees were determined, and attention was paid to a more effectual check of accounts of money paid into and out of court.

Civil Justice.—The following is the number and value of civil suits instituted for a series of years:—

	No. of Suits.	Value of Suits.		No. of Suits.	Value of Suits.
1865	17,012	Rs. 23,31,666	1873	21,414	Rs. 23,45,380
1866	12,342	13,95,023	1874	22,652	23,13,082
1867	13,455	22,69,350	1875	25,052	25,02,152
1868	14,702	17,03,488	1876	25,051	21,03,785
1869	16,835	15,90,499	1877	17,341	19,93,023
1870	20,201	20,98,986	1878	21,509	25,06,341
1871	20,764	29,06,407	1879	21,475	24,82,516
1872	21,407	23,13,785	1880	17,203	22,45,104

From the returns for 1880 it is found that 96 per cent. of the total number of suits were for sums under Rs. 500. Nearly 30 per cent. of the suits which were disposed of were contested: 53 per cent. were uncontested, and the rest were either disposed of without trial or referred to arbitration. Of the contested suits, about three-fourths were decided for the plaintiff, and one-fourth for the defendant. Of the uncontested cases in 1880, 33 per cent. were decreed *ex parte* or in default. Only a small proportion of suits were left undecided for more than 3 months.

Registration.—The Registration Act XVI of 1864 came into operation in Mysore on the 1st January 1866, and the amended Act XX of 1866 on the 1st January 1867. By a new Act, introduced in September 1871, a large class of documents previously subject to compulsory registration was exempted, namely, coffee-land grants,

inám title-deeds, and various assignments of land made by Government. Other provisions of that enactment—such as the admission of unregistered documents in evidence of contracts even where they relate to immovable property, and the withdrawal of the special advantages conferred on registered instruments by the old Act, by removing the obligation in some cases and the incentive in others—tended to reduce the work of the Department. A revised scale of fees was introduced from the 1st September 1878. Whilst the fees on immovable property of the higher values, subject to the compulsory clauses of the Act, were somewhat enhanced, the minimum fee of one rupee which formerly applied to all below Rs. 100 was reduced to 8 annas in the case of documents not exceeding Rs. 50. So also for documents of value above Rs. 100 relating to movable property, which are registrable at the option of the parties, the fees were reduced to one-half of documents of like value for which registration is prescribed, the object being to encourage optional registration of all kinds.

The following statistics will show the progress of registration year by year :—

Year.	Immovable Property.			Movable Property.
	Compulsory Registrations.	Voluntary Registrations.	Total Value. Rs.	Registrations.
1865-6	695	414	...	423
1866-7	3,107	1,352	...	1,392
1867-8	4,408	1,364	...	513
1868-9	4,672	1,221	...	...
1869-70	5,513	1,463	23,59,915	478
1870-1	6,086	1,619	32,65,531	462
1871-2	5,239	1,612	30,99,706	417
1872-3	6,026	1,700	33,22,641	415
1873-4	6,566	1,591	33,68,590	448
1874-5	7,332	2,155	35,33,219	463
1875-6	8,121	2,721	41,28,556	512
1876-7	8,780	3,297	41,96,361	379
1877-8	10,635	6,413	47,30,243	...
1878-9	10,013	6,013	47,22,671	...
1879-80	10,072	4,504	42,33,465	...
1880-1	9,959	5,110	68,98,960	...

The unusually high value of the registered property in the last year is owing to registration of certain gold-mining companies.

Criminal Justice.—The following figures exhibit the statistics of crime for ten years to 1880, and show a decided diminution in serious offences. The increase in crimes against property in 1877 and 1878 was due to the famine.

Crimes against	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
The State, public and justice	813	1,043	2,265	1,918	1,775	1,931	1,146	989	774	681
Person ...	10,385	8,239	6,405	6,750	6,114	7,285	5,393	4,386	4,605	4,820
Property ...	7,256	4,997	4,186	3,606	3,337	5,170	16,409	8,927	3,906	4,077
Special Laws .	1,858	1,736	1,308	1,591	1,792	1,610	1,875	1,826	2,007	2,078
Total...	20,312	16,015	14,164	13,865	13,018	15,996	24,823	16,128	11,292	11,656

The results of criminal trials are shown in the subjoined table. The average duration of cases disposed of in 1880 was 3 days. Of 346 appeals from the 96 magistrates of the 2nd and 3rd class, in 41 per cent. the conviction was upset. Of 156 appeals to the Sessions Courts from the 29 Courts of the 1st class, 22·4 per cent. were reversed. Of 159 appeals to the Court of the Judicial Commissioner only 12 per cent. were reversed.

Head.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Persons brought to trial ...	40,015	30,810	27,858	27,098	27,041	35,294	50,164	30,132	20,679	18,989
Persons acquitted ...	17,179	9,200	8,258	9,018	10,065	14,057	11,760	8,888	10,164	9,618
Persons discharged...	10,233	5,467	3,427	3,482	2,852	4,491	6,272	3,975		
Persons convicted ...	12,474	15,926	16,058	14,465	13,419	16,259	30,789	16,995	10,043	9,242

Prisons.—The present system of jail management may be described as dating from the construction in 1863 of the Bangalore Central Jail, an institution which not only serves as a model to the other prisons of the Province, but is widely known as second to none in India. The accommodation is intended for 1,000 prisoners.

Previous to the period spoken of, the able-bodied convicts were employed in making roads, and lodged in what were called Road or Camp Jails. These consisted of nothing more than temporary sheds, the materials of which were pulled down, carried on, and re-erected as the place of encampment was changed. In the Chitaldroog District, convicts of the artisan class were employed in a workshop to make up the iron and wood work for travellers' bungalows and other public buildings. At Bangalore and Mysore were jails of a more permanent character. In the former was the Town Jail, consisting of separate wards for felons, debtors, and insane; and the Fort Jail. The Town Jail was removed in 1853 from a low and crowded part of the Petta to a more airy site near the northern gate, obtained by

clearing the old boundary hedge. The building was entirely of stone, on the native principle of construction, and was capable of holding 400 prisoners. The Fort Jail was originally a temporary thatched building, situated near the Mysore gate of the Fort. This was also rebuilt on the same principle as the Town Jail, with accommodation for 292 inmates. It was specially used for the confinement of Thugs sentenced to long periods of imprisonment.

The prison diet was 1¼ seer of ragi and ¼ anna in cash for each working day, and 1 seer of rice, with the same money allowance, for Sunday. Out of the money, the prisoners were allowed to purchase for themselves salt, pepper, chillies, and other condiments to savour their food with, but care was taken to prevent their having access to drugs, opium, or spirits. The working hours were from sunrise till 3, with an hour's rest at noon. There was no labour on Sunday, when oil and soap-nut were served out to each man for ablution.

During the famine years the jails were overcrowded. In Mysore it was found, on this account, necessary to form a branch jail at Kukarhalli, and the convicts were employed on the construction of the reservoir for the waterworks. This is the Camp Jail below referred to. It was given up at the end of 1880. The other jails were so far emptied after the famine that all danger of overcrowding was removed. The mark system was introduced in 1879, by which convicts of good conduct could earn appointments as warders and work-overseers, with some remission of sentence and small gratuities.

At the close of 1880 there were 8 jails, with one camp jail, and 81 lock-ups, containing altogether 2,899 prisoners (2,783 male and 116 female), distributed in the following manner:—

Prisons.	Convicts.	Under Trial.	Civil.	Total.
Central Jail	1,044	4	1	1,049
District Jails	1,711	60	18	1,789
Taluq Lock-ups	17	40	4	61

The total cost of the jails for that year was nearly 2 lakhs, the average annual charge per head being Rs. 80–4–3.

All the prison labour is intramural, consisting of manufactures, gardening, and public works. The convict labour at Kukarhalli was valued at Rs. 23,717 in 1879 and Rs. 22,642 in 1880. The total profit on the employment of the remaining convicts in jails was about half as much. The value of manufactures in the Central Jail for 1880 showed a profit of Rs. 13·34 per head of effectives. Education has for some years been introduced with good effect. In 1880 there was a daily average of 921 prisoners under instruction. Of the 1,281 prisoners

released during the year who had been under instruction in the jail, 1,007 were unable to read and write when they entered, but when they left, the number so unable was only 587.

Police.—The necessity for an improved organization of the Police long attracted attention. The prevailing system was simply the old Kandachar improved upon by better supervision. The first step towards reform was the introduction, in 1866, of the Police Act V of 1861 into the Bangalore District, and the appointment of an officer of the Madras Police to the charge of the District. It was at that time contemplated to introduce the Madras system throughout the Province. But the new system, although favourably reported on after the lapse of a year, was found to entail a considerable increase of expenditure. It moreover possessed the radical defect of overlooking in great measure the existence of the Village Police, a class which, if properly organized and remunerated, was capable of performing useful service to the State.

The Government therefore resolved, in lieu of adopting the Madras system of organization, to begin the task of reconstruction by remodelling the village police, whose decayed condition called in the first instance for remedy. The patels and talaris had not sufficient remuneration; in some cases ináms granted for the maintenance of village police had been alienated or diverted from that object: thus the village system had not been sufficiently cared for, and the superior advantages which the village officers possessed, with their local knowledge, over the regular police, in detecting or giving information regarding dacoits, etc., were not utilized. It was therefore considered necessary that the village institutions should be duly recognized in any comprehensive police system for the whole Province, with the view of securing economy and efficiency, especially as the number of persons registered as holding service lands from Government amounted at the time to 14,000.

Accordingly, the following principles were laid down as the basis of the scheme proposed for the whole Province:—

1st. The Village Police should be restored to a condition of reasonable vigour and efficiency. Their duties should be carried on under the guidance of a few simple rules. Their remuneration should be at once provided for throughout the Province by rent-free assignments from unassessed lands, all questions connected therewith being left to be settled by the Revenue Survey Department in their due course of operations; an essential feature in this measure being the concession of magisterial powers in petty cases to competent heads of villages.

2nd. The Kandachar police should be superseded by a constabulary

similar to that already introduced into Bangalore, but having the village police for its basis. The functions of the latter should be to act as auxiliaries to the former; and on it (working as it ought under the village headmen) should devolve the responsibility as well of reporting a crime as of discovering the criminal. No additional expenditure should be incurred, as the regular force need not, under the circumstances, be numerous, but the members should be well paid, and specially selected with the view of fitting them to assist the Village Police in detection. The relations of the village police with the regular police should be clearly defined, so as to utilize the former to the fullest extent; and so adjusted, that, while the due performance of their duties is secured, unnecessary interference on the part of the regular police in ordinary village affairs is eschewed.

3rd. The regular police need not be armed and drilled, as the local Barr Force (which is otherwise useful in guarding District and local treasuries, and thus largely relieves the police of some of its work) would well suffice for repressive purposes.

Rules drawn up in accordance with the foregoing principles were sanctioned at the end of 1872. During the following year the system was introduced throughout the Chitaldroog District, the only one completely surveyed and settled. But it was soon found that the re-constitution of the Village Police, which had but a nominal existence, would require time, as the men available for employment in the new constabulary being necessarily taken from those belonging to the old Kandachar force, required training for their new duties, and the village patels being generally illiterate were incapable of performing in a trust-worthy manner the functions prescribed for them.

An *ad interim* measure was therefore introduced, in 1874, for the improvement of the existing force in the other Districts by the discharge of incompetent men and the introduction of an improved class on better pay, accompanied by a numerical reduction of the force. Provision was made for instructing all grades in police duties, and requiring the officers to pass an examination. By these special rules the District Police was governed, while the Police Force of the Town and Cantonment of Bangalore was administered under Act V of 1861.

The Police Department was controlled by a Deputy Inspector-General of Police, acting under the Judicial Commissioner, who was the Inspector-General. In the Districts, the Deputy Commissioner was *ex officio* Head of the Police, and was aided by one of the Assistant Commissioners, who was designated the Police-Assistant. This officer, while primarily responsible to the Deputy Commissioner for the discipline and general working of the Police, was available for other general duties (excepting magisterial duties in connection with police cases), whenever such could be performed without prejudice to his own duties.

Every effort was used to make the service popular. Station-houses were built wherever shelter was not available, and huts constructed where accommodation was not easily procurable. Baṭṭa was also given at hilly and ghat stations, and suitable clothing issued to the men of the Force.

The ordinary weapon of the Rural Police was a stout bamboo cudgel, about 1¼ inch thick and 40 inches long, fitted with brass ferules at the ends, on one end of which the name of the peon and his number were engraved. A few fusils with sword bayonets were issued, but the want of training to the use of firearms on the part of the men, and the inadequate accommodation for their careful storage, proved obstacles to the Force being more generally supplied with these weapons; but arrangements were made to issue them to men stationed in isolated localities where they were specially needed.

In August 1879, the Chief Commissioner assumed direct control of the Police through his Secretary in the General Department, while the Military Assistant supervised the discipline, clothing and equipment of the Force. In December 1880, a further organization was introduced, rendered necessary by the changes made in the Mysore Commission and the abolition of Police Assistant Commissionerships. The general management of the Police duties of the District was placed directly in the hands of the Deputy Commissioner, with liberty to employ a General Assistant Commissioner on any particular duty. Amildárs were put in executive charge of the Police of their taluqs and the Inspectors were made their assistants in the Police branch. The number of officers was considerably reduced, being regulated by the number of taluqs and stations. At the same time the number of constables was increased in some instances, and the Police Force maintained by the Seringapatam and Ganjam municipalities was absorbed into the District Force.

With regard to distribution, 365 officers and 3,454 men were employed on patrol beat and other duties, and 51 officers and 318 men in guarding lock-ups, treasuries, and on escort duty, while 596 were on duty in towns. The total sanctioned strength, including those maintained by Municipalities, was 510 officers and 4,061 men, or a total of 4,571. The cost of the Force was Rs. 5,99,976, of which Rs. 5,24,942 was payable from State revenues and the remaining Rs. 75,034 from other sources.

Nothing much was done in regard to resuscitating the Village Police, but its status was improving, and great care was exercised in selecting influential and intelligent men for Patelships. Since the Amildárs had been invested with Police functions more interest was taken in

the working of the Village Police. In the famine many villages were defended by these with great courage against the attacks of dacoits, and the criminals pursued and apprehended.

Of the officers, 28 were Christians, 171 Muhammadans, 287 Hindus and others. Of the men, 30 were Christians, 1,495 Muhammadans, 2,701 Hindus and others.

In 1880 there were 6,881 cases of cognizable crime in which the Police were engaged, and convictions were obtained in 84·62 per cent. The Police arrested 7,015 persons, of whom 65·91 per cent. were convicted. In non-cognizable crime, the Police arrested 692 persons, of whom 472 were convicted.

PUBLIC WORKS

Under the previous Native Governments there was no Engineering staff as we now understand it, and the Administration which succeeded in 1831 made no immediate change in this respect. The Superintendents of Divisions and the Amildárs of Taluqs carried out all descriptions of work through Native Mestris and Mutsaddis attached to the taluqs, and the maintenance of tanks and channels was always regarded as specially appertaining to Revenue officials. But the want of professional assistance in the matter of roads and bridges early pressed itself on the Administration, and the post of a Superintendent of Marámat was created in 1834. The attention of this officer was almost exclusively devoted to designing and executing original works.

In July 1854, the Court of Directors, in consideration of the prosperous condition of the finances of Mysore, desired that opportunity should be taken to execute "such works of unusual magnitude and importance as might appear calculated to promote in the largest degree the development of the resources of the country." Sir Mark Cubbon, in reply, proposed to construct the Mari Kanave reservoir, as the only large irrigation work coming within the scope of the Court's requirements; but as the Superintendents were "overwhelmed with the revenue and judicial business of their Divisions," and as the Commissioner had "daily and hourly forced on him the conviction of the utter breakdown of the attempt to maintain the roads by native agency without the necessary minute supervision of European Officers," he suggested that a Superintendent of Roads should be appointed, with a proper staff. After further correspondence, the Department of Public Works was constituted in June 1856, and consisted of a Chief Engineer and an Assistant Chief Engineer for the direction, and of five Executive

Engineers, four Assistant Engineers, and eleven Upper and nineteen Lower Subordinates for construction.

The charge of the roads was completely handed over to the new Department. Not so, however, the tanks and channels, which were still left under the charge of Revenue officers. It was only by a species of lapse that the Executive Engineers found themselves in charge of such special works as appeared necessary from their own personal inspection, or as were brought to their notice by Revenue officers. The anomalies which thus sprung up were in a great measure put an end to in 1863, by a Committee which assigned the charge of tanks definitely to the Revenue officers, with specific powers of sanction, reserving for the Department of Public Works such works as called for professional supervision. This arrangement gradually gave place to a better system of tank management, which had been shown to be necessitated by the tank-system peculiar to Mysore, involving as it does the solution of hydraulic questions of no ordinary difficulty, and demanding the services of a highly-trained professional department.

After prolonged discussion, the Secretary of State for India approved of the formation of an Irrigation Department for carrying out the objects in view. By this arrangement, the Revenue officers remained as before charged with the up-keep of such tanks as were not immediately being dealt with by the Irrigation Department. These latter selected specific series for immediate work, and brought the tanks composing them up to standard, to be afterwards made over to cultivators for perpetual maintenance, with the exception of works like waste weirs, sluices, &c., which required departmental management, and for which provision was made partly by annual grants and partly from the irrigation cess of two annas per rupee of wet land assessment. The avowed object of this plan was that while the whole of the tanks in the country should be brought up to a standard of safety, and their future up-keep thrown upon the most interested parties—the ryots—under stringent regulations, nothing but simple conservancy would of necessity be imposed on the succeeding Native Government, who would be thus enabled effectually to control the whole without the aid of a highly-trained engineering staff.

So also for the irrigation channels under the Kaveri, Hemavati, Lakshmantirtha and Shimsha rivers, a separate Channel Conservancy establishment was formed in 1864 under the supervision of Revenue Officers; and the Public Works Department only carried out such original works as necessarily required their supervision. But in 1870 the charge of the channels and the direction of the Conservancy establishment were made over to the Superintending Engineer for Irrigation.

In 1873 the Public Works Department was separated into two distinct branches, one for Roads and Buildings, and the other for Irrigation.

In the matter of labour, Mysore had always presented serious difficulties, owing partly to the sparseness of the population (chiefly on the west and south), and partly to the fact that the great bulk of the people were cultivators, whose presence on their own fields was generally called for at the very season when public works required to be pushed on with vigour. The attractions offered by the tea and coffee estates on the Nilgiris, in Wainad, Coorg, Manjarabad and Nagar, the advent of the Railway, together with the great extension of public works, both imperial and local, and the impetus given to private undertakings of all kinds, combined to raise the price of labour very high. As nearly as could be ascertained from an analysis of the rates for labour at each decade during the previous 40 years, it would appear that the price of unskilled labour had doubled since 1850, and that of skilled labour risen threefold.

At all times the labour needed for the repairs of tanks and channels had presented special difficulties, and under native rule was no doubt met by expedients not now available. In addition to the forced labour then resorted to, there was in many instances a tank establishment (*kere bandes*) who, in return for certain lands held rent-free, were required to maintain buffaloes for bringing earth to the tank embankments. Whatever remained of this old institution was being put an end to, by the members being released from service and allowed to retain their inám lands on payment of a small quit-rent.

There were also bodies of men called Kámátis, who, in return for certain privileges, were liable to be called on for effecting repairs within their respective taluqs; as also a corps called Khálihúts, who were organized for general service in all parts of the Province on road or irrigation works as might be required. The origin of this corps, which, among other privileges, enjoyed freedom from house-tax, was, however, of comparatively recent date. They were originally palanquin bearers, maintained by the State on the main road from Palmanair to Mysore *viâ* Bangalore, their services to travellers being, it is understood, rendered gratis. With the increase of travellers, and the introduction of other means of locomotion than palanquins, the specific employment for this corps ceased, and the men were as a body turned over to the Maramat in 1841, and afterwards to the new Department of Public Works. In 1860 the Kámátis and Khálihúts were fused into a single corps of 10 companies, 100 strong each, with an establishment of Jamedars, Dafedars, Mutsaddis, &c. The annual cost of this corps amounted to Rs. 67,000. In this form, the corps, though rather

reduced in numbers, was usefully employed on works to the west and north-west of the Province, where it was almost impossible to raise indigenous labour.

Cooly companies had at times been raised for specific purposes and short periods; but they had been found more troublesome than useful, and the work turned out by them expensive. Moplas and other coast men were frequently found ready to undertake the construction of rough stone revetments on the ghat roads; but in all other parts of the country indigenous labour had to be relied on.

Since 1862 the system of executing work by contract had been more largely resorted to than before. The practice of making advances, which had led to most unsatisfactory results, was done away with, and contractors were encouraged by payments made at short intervals on past and approved work. While it must be conceded that in many cases bad work may have been passed and paid for, there is no doubt that advantageous results were nevertheless attained. The system enabled the Department to extend its operations more than would otherwise have been possible with its restricted establishment.

There are no means of ascertaining the sums expended on Public Works before the present century. There is, however, no doubt that considerable local expenditure was incurred in the construction of temples, palaces, and works for religious purposes, or for the shelter or convenience of travellers. Moreover, in the days of the old Palegars, much of the means and labour of the people were devoted to the construction of those hill fortresses called droogs, which are scattered all over the Province, and form one of its distinguishing features.

Narrow and tortuous village tracks, passing through dense forests, and over the mountains of the Western Ghats, served the purpose of roads. Over these, pack bullocks, bearing the little that had to be carried from one place to another in those days, pushed their way with considerable difficulty towards the coast. The only wheeled vehicles used in the plains were either the small *waddar* cart, or the great *hallu bandi* of the Malnad, both alike suited only to the small local requirements of the ryot, bringing in his supply of firewood or carting manure to his fields.

There are a few bridges of singular construction which belong to this period, such as those over the two arms of the Kaveri river as divided by the island of Sivasamudra,[1] and those over the minor branches of

[1] Supposed to have been built 700 years ago, and repaired in 1830 by Ramaswami Modaliar, who received for his work the title of Lokopakarartham Karta, or "performer for the public good," from the British Government, and jágirs worth Rs. 17,000 per annum in British and Mysore Territories.

the Kaveri at Seringapatam,[1] the bridge over the Kabbani river at Nanjangud,[2] that at Betmangala on the old Kolar road, and five other small works of the same class within the fortifications of the ancient city of Nagar or Bednur. But these, though doubtless of local value, formed no portion of a system of provincial communications.

The only works of this period which can be classed as having any extensive public utility are the tanks (which stud the whole surface of the maidan taluqs), and river channels, in the construction of which, through many hundreds and possibly even thousands of years, an incredible amount of patient industry has been devoted.

At what particular period the tank system attained its full development it is now quite impossible to say; but judging from the necessary conditions of its growth, the progress could not fail to have been extremely slow, and most probably it expanded with the natural increase of population. It may be conjectured that the first civilized inhabitants, taking possession of the higher grounds, constructed the small tanks or *kattes* on the minor rivulets, and then step by step followed these down to the larger streams, arresting and impounding the water at every convenient site by throwing earthen *bunds* across the valley.

As, according to the plan followed, it was possible to advance only steadily downwards from the watersheds of the various streams to their extremities, it may be conceived how vast a time would be expended in creating a single series as we now find of several hundred, and in some cases over a thousand reservoirs, linked together in this fashion, and forming such continued chains of works that not a single drop of water falling on the catchment is lost in seasons of drought, and but little in ordinary seasons. To such an extent, moreover, was this system carried, that in many parts of the Province it would now be quite impossible to construct a new tank without interfering prejudicially with the rights of other older works on the same line of drainage. This vast series of works, individually varying in size according to local circumstances (from the great Sulekere tank in the Nagar Division, extending over 14 square miles, down to small *kattes* or village reservoirs), grew into existence necessarily without reference to scientific principles, and was purely experimental.

As belonging to the same period, the channels drawn by means of anicuts from the Kaveri, Hemavati, Lakshmantirtha, and other streams must here be noticed. The designs of these works are attributed to Rájas of old, and even to certain beneficent deities, and precise dates are assigned for the construction of several of them. But whatever the

[1] Supposed to have been erected in 1656.

[2] Supposed to have been constructed in 1727.

facts, it is at least clear that they are extremely ancient, and that however defective as tested by our modern ideas in these matters, their original construction exhibits a boldness and an appreciation of the conditions of structure, which, under the circumstances of the times, excite the greatest admiration. In addition to the anicuts now in use, the remains of probably more than three times as many others are still visible when the rivers are low. From some of these the original excavations made for the old channels are still apparent, while from others channels do not appear to have been excavated. It is therefore clear that the success that resulted from the construction of the works that are still in use was not obtained without a very large proportion of failures, and the perseverance displayed by the constructors in spite of these failures is none the less remarkable, and shows the high value placed in former ages on irrigation works.

During the regency of Divan Purnaiya, $77\frac{1}{4}$ lakhs were expended on public works, of which $31\frac{1}{2}$ were devoted to irrigation works, but only 67,000 to roads, and this not till he had been five years in power. The former sum was to a great extent absorbed in the repair of old tanks and channels, the majority of which had fallen into a ruinous condition during the reigns of Haidar and Tipu. A further expenditure of $17\frac{1}{2}$ lakhs was incurred on the project of a canal, now known as Purnaiya's Nála, whose object was to bring the holy waters of the Kaveri into Mysore and also Nanjangud, but which entirely failed in its intention. The other items of expenditure were :—Near 15 lakhs on construction and repair of forts, those of Bangalore and Channapatna being the principal works ; $5\frac{1}{2}$ lakhs on the Wellesley Bridge over the Kaveri at Seringapatam ; above $3\frac{1}{4}$ lakhs on travellers' bungalows, &c. ; near 2 lakhs on maths, chatrams and other religious buildings ; $1\frac{1}{2}$ lakh on taluq cutcherries and other civil buildings ; $1\frac{3}{4}$ lakh on Webbe's monument near the French Rocks.

For the period of the Maharája's direct government, information can be gathered only from the condition in which public works were found at the time of the British assumption. From Colonel Green's report, it appears that there existed in 1831 only three roads in any way entitled to the appellation—*viz*, the road from Naikneri to Mysore *viâ* Bangalore ; the road from Seringapatam to Sira and Bellary ; and the road from Bangalore to Harihar : and all of these were very indifferent, having portions running through swamps, the passage of which would detain the baggage of a regiment an entire day ; other places bore the appearance of watercourses with beds of river sand, the soil having been washed away far below the level of the surrounding country. The better order in which some few portions were preserved was in a

great measure neutralized by the almost total absence of bridges, which in a country like Mysore, situated between the two monsoons, was a most serious inconvenience, and throughout the year kept the progress of the merchant, or the traveller, perpetually liable to interruption. It was no uncommon thing for a regiment, or even the tappal runners, to be detained for several days at a nullah not 16 miles from Bangalore, and there were several other such impediments in different places on the three roads, where lives were annually lost to a considerable extent.

There was not, at the time of the assumption of the country in 1831, a single pass through the Western Ghats practicable for cattle with loads. At the Agumbi Pass, in the Nagar country, which was the most frequented, it was usual to carry everything of value on coolies, the hire for which was ½ a rupee per bullock load. Thus, when the bales exceeded the number of porters, who were a peculiar caste of men of a limited number, or when the latter were away at festivals, it was not an extraordinary thing for a merchant to be detained at the ghat ten days or a fortnight, before his turn came or there were means available by which his goods might pass the ghat. The approach to the head of the pass was marked by lame cattle, bleeding and bruised, with horns broken off in scrambling about the stones on the pass, while the atmosphere was tainted with the effluvia of the carcases of bullocks which, taxed beyond their strength, had perished by the way.

As regards irrigation works, in some cases where the Rája's Government had attempted to arrest the decay accruing to a tank, the measures adopted had an opposite effect to that which was intended; the remedy was worse than the disease, in reality accelerating the failure of the *bund* it was desired to preserve. This arose from the intentional mismanagement of the parties employed to carry the earth repairs into effect, whose object, if paid for their labour, was to secure, by the breaching of the *bund* they had been engaged to strengthen, another and more advantageous contract the following year; or when, as appears to have been the more usual mode of executing Sarkar work, they were not paid at all, to get through their forced labour as easily as they could.

From 1831–1856 the sum of 30¼ lakhs was spent on irrigation works, 28¾ lakhs on roads, and 6 lakhs on buildings. As regards the first, individual works were much improved, and many almost wholly reconstructed from the ruinous condition into which the Maharája's Government had allowed them to drift; yet little advance was made on the native method of maintenance, because the interdependence

of the tanks, and the necessity for dealing with them in series, was not sufficiently recognized and acted upon. So also with river channels, although some improvements were introduced, such as the construction of brick facings to some of the anicuts when under repair, yet most of the radical defects in these works were left without remedy.

With regard to roads and bridges the case however was different. The roads constructed at this period not only connected all head-quarter stations with Bangalore, but some of them were great through lines, extending on all sides to the frontiers of the Province. Altogether 1,597 miles of road, with 309 bridges, and 1,998 drains were constructed in the Province after the transfer of Government and before a regular Department of Public Works was organized.

Among the miscellaneous works executed was the commencement in 1853, and in great part completion, of flying and permanent electric telegraph lines,—one from Attibele near Oossoor to Rampur on the Bellary frontier, being a length of 191 miles; the other from Bangalore to Kankan-halla on the Nilgiri road, length 143 miles—at a cost of Rs. 1,03,639 for the lines, and Rs. 8,253 for offices at Bangalore and Mysore.

Since the formation of the Department Public Works in 1856, the expenditure for 20 years under the several heads, exclusive of establishment, may be thus stated :—

Class of Work.	Original Works.	Repairs.	Total.
Military	1,77,233	37,563	2,14,796
Civil Buildings	25,96,501	3,23,450	29,19,951
Agricultural and Irrigation ...	18,73,975	34,06,202	52,80,177
Communications	45,63,658	51,11,255	96,74,913
Miscellaneous Public Improvements	7,48,722	70,712	8,19,434
Total Rs....	99,60,089	89,49,182	1,89,09,271

Under *military*, the chief expenditure was due to the construction in 1865-6 of a new Cantonment for a Native Infantry Regiment at Mysore, which, however, had subsequently to be abandoned owing to the unhealthiness of the situation.

Of *civil buildings* the largest works were the Public Offices at Bangalore, built between 1864 and 1868, at a cost of Rs. 4,27,980 including site; with the Central Jail and the Bowring Civil Hospital, built in 1867, at a cost for the former of Rs. 46,047 and for the latter of Rs. 2,16,454. More recently, at Bangalore, the Rája's Castle,

Government House, the Division Cutcherry, and the Central College (late High School) are prominent buildings which were in great measure (especially the first) rebuilt according to ornamental designs, costing altogether about $2\frac{1}{2}$ lakhs. With these may be mentioned the Museum, the Post Office, and the Government Press, costing together nearly 1 lakh. Cutcherries at head-quarters of Districts for Deputy Commissioners, at Sub-division head-quarters for Assistant Commissioners, Courts for Judicial Assistants, Taluq cutcherries, District Jails (that at Shimoga costing over 1 lakh), School-houses, Civil Hospitals and Dispensaries, offices for Executive Engineers at District head-quarters, —were various classes of structure which provided throughout the country suitable accommodation for the several branches of public business involved.

In the category of civil buildings falls also work done to public monuments and religious buildings. The chief work here was the repair and re-painting of Tipu's Summer Palace, known as the Dariya Daulat, at Seringapatam, under orders issued by the Marquis of Dalhousie in November 1855. The work, which was almost entirely of an artistic character—*viz.*, repainting the picture of Baillie's defeat, renewal of the interior enrichments, &c., was well completed in a little over three years at an outlay of Rs. 37,000. Under the same authority Rs. 2,000 were expended in 1859 in replacing the inlaid doors and executing other work to the tombs of Haidar and Tipu at Seringapatam. Rs. 5,491 were spent in restoring the roof and otherwise preserving the celebrated temple of Halebid.

Of works of *irrigation*, included under the head Agricultural, the following are some of the principal that were executed :—

	Cost Rs.
Rebuilding the Sriramdevar anicut on the Hemavati, and improving channel below	2,78,504
Rebuilding the Maddur anicut on the Shimsha, and improving channel below	85,365
Rebuilding the Marchalli anicut on the Lakshmantirtha, and improving channel below	29,339
Aqueduct over the Lokapavani on the Chikdevarayi-ságar channel ...	22,265
Rebuilding the Lakshmanpura anicut on the Nugu...	12,878
Do. Halhalli anicut on the Gundal	10,424

A very important principle was introduced in these works—*viz.*, the substitution of solid watertight anicuts for that under the old native construction, which consisted entirely of packed stone, without the requisite coherence, and carried with it the elements of destruction, while it allowed nearly all summer water to escape through unutilized. The application of sound methods of construction to these works, and

to the regulation of channels below them, as also the distribution of water for irrigation, may be said to have created quite a new era in the channel system of Mysore.

In 1872–3, a grant of 108 lakhs, inclusive of establishment, was assigned for expenditure on irrigation in the next 12 years, namely, 72 lakhs for tanks and 36 for channels.

Under *communications* the expenditure was laid out either in the construction of new roads or in rectifying and improving old ones, as well as in the construction of large bridges. In 1875–6 there were 1,552 miles of road maintained by the Department at an expenditure of about 3 lakhs, and at the rate on the average of Rs. 193 per mile, including the travellers' bungalows and inspection lodges. The two new ghats—*viz.*, the Búnd and Haidarghar, were most important additions to the provincial communications, and completed six outlets for cart traffic between Mysore and the western coast. The last was laid out at easier gradients than any other, and promises to be of special importance, as it stands in direct connection with a well-studied network of roads designed to open out the whole of the Nagar Malnád. This tract of country, so rich and fertile in its supari gardens, was most difficult of access, and presented a serious barrier to all communications with the coast. Opened by these lines, the whole Province to its remotest corner is in communication with the western coast.

The construction of numerous bridges also devolved on the Department Public Works, in connection with both the old and the new lines. These are so numerous that only the very largest need here be noticed, from among those which have been constructed since 1856. Subjoined are particulars concerning four such works :—

Name of Work.	Over what River.	On what Road.	Materials of Construction.	Number and Dimensions of Spans.	Date of completion	Cost Rs.
Harihar bridge	Tungabhadra.	Bangalore to Dharwar .	Stone and Brick ...	14 elliptical spans, 60′ each ...	1868	3,48,096
Saklespur do.	Hemavati ...	Bangalore to Mangalore	Iron ...	4 spans, lattice girders, 120′each,on cylinders ...	1870	1,94,620
Shimoga do.	Tunga ...	Bangalore to Honnore .	Brick ...	16 arches of 50 feet span each ...	1859	1,07,538
Benkipur do.	Bhadra ...	Do.	Do.	13 arches of 50 feet span each ...	1860	74,997

Under *miscellaneous public improvements*, the works have as a rule

ceased since the introduction of municipal institutions, and are confined to exceptional cases in which the assistance of Government is given in the shape of a grant-in-aid. All the large towns have benefited more or less, but Bangalore above others, as being the seat of Government and the most important town in the Province. Nearly 2½ lakhs were spent on the central channel of the Cantonment Bazar, and in the construction of a self-regulating main sewer which runs alongside and transfers all sewage to a considerable distance from the town. The largest works undertaken were the Water Supply projects for Bangalore and Mysore, the estimates being about 5 lakhs for each.

The increasing revenue derived from District Local Funds enabled the transfer to that head of the maintenance of subordinate lines of road, besides providing the means of extending cross roads. Including the transferred lines of road, there were, at the end of 1875–6, an aggregate of 2,243 miles for which maintenance allowances were provided out of District Funds. During the first few years, while there existed inadequate means for laying out roads of this class, framing the estimates and subsequently executing the work, the results were in many respects unsatisfactory; but arrangements were made for entrusting the designs and setting out of the work to Executive officers, while the work was carried into execution by local agency, under the Revenue officers. The Public Works Department, moreover, construct all bridges over 20 feet span on District Fund roads.

In 1876, in order to meet the necessity of increased supervision consequent on a largely increased grant, a re-organization of the establishment and a partial re-distribution of the Divisional charges were sanctioned. But the great famine which ensued upset every forecast. All ordinary budget rules for sanctions and appropriations had to be set aside under the severe pressure. Sanctioned works had to be abandoned altogether, or postponed till better times; unsanctioned works had to be taken in hand without much regard to their ultimate usefulness, and the whole energies of the Department and all means available were concentrated to find suitable and, as far as possible, remunerative employment for the starving population. The principal new works thus put in hand were the embankments and cuttings of the Mysore Railway, Agrahara tank, Halsur tank road, and road from Railway Station to Native Infantry Hospital. Works previously sanctioned and already commenced were the Bangalore and Mysore Water Supply projects, with extensive collection of materials for, and repairs to roads in Bangalore, Tumkur and Chitaldroog Districts. A number of engineers from other provinces were deputed to Mysore temporarily for

supervision, and thus much useful, though costly work, was carried out by the famine coolies.

In 1879 the system was given up by which only Imperial works, or those paid for from State revenues, were executed by the Public Works Department, while all works paid for from District and Local funds were carried out by the Deputy Commissioners, under whom in two Districts were Local Fund Engineers. For the first time all works, of whatever nature, thenceforward devolved on the Public Works Department, the establishment charges being rateably distributed over the several different funds.

The total grants for Public Works in 1878–9 was 15·76 lakhs, and in the two following years 17·68 and 17·10 lakhs respectively, but the latter figures included Local as well as State funds.

Railway.—Though not connected with the Mysore Department of Public Works, the Bangalore Branch Railway, opened on the 1st August 1864, claims to be here mentioned as a most important means of communication, which had a great effect in stimulating traffic and awakening enterprise. The line is 84½ miles long, of which 53 are within the limits of Mysore. It joins the Madras main south-west line at Jalarpet.

A survey for an extension of the line to Túmkúr, a distance of 43 miles, was made in 1863–4. It was calculated that only 2 large bridges would be required for this portion, that the worst gradient would be 1 in 80, and the entire cost for a first-class railroad, including stations, permanent way and rolling stock, would be Rs. 70,000 a mile. The question continued to be discussed till 1867. But a preliminary point for determination was, whether the line should be extended from Bangalore so as to form a junction with the north-west line from Madras to Bombay, or should be confined to a railway system within the limits of the Province. The former would be the most costly, as involving the retention of the existing gauge. The project which most commended itself at the time, was the prolongation of the line to the central trade emporium of Tiptur, 80 miles west-north-west of Bangalore. For this trunk line, on the standard gauge, the cost, it was estimated, would be about 40 lakhs of rupees. From Tiptur it was proposed to construct a series of narrow gauge lines, reaching to various points from the Wynad frontier in the south-west to the Canara and Dharwar frontier in the north-west, and embracing the whole province in a network comprising nearly 500 miles of railway, the outlay on which was estimated at 26 lakhs of rupees.

In 1870–1, after careful deliberation, a system of light railways, to connect Bangalore, Túmkúr, Tiptur, Hassan and Mysore, was

determined on as the most suitable to meet the requirements of the country. In accordance with this scheme, the project of the metre gauge State Railway, from Bangalore to Mysore direct, as one link of the chain, was at once proceeded with, but the following year postponed. The preliminary survey and arrangements had, however, all been completed, and much of the material collected along the course of the line.

In 1877–8 the earthwork between Bangalore and Channapatna was commenced as a relief work. The first section of three miles, between the Bangalore Cantonment and Petta, was for the broad gauge. In June 1879 the complete project was sanctioned by the Government of India, at an estimated cost of 38·82 lakhs, and a railway establishment was organized to carry it out as an ordinary public work. In October 1880 the Petta extension was, by agreement, transferred to the Madras Railway Company, who took it over up to formation level free of cost, to complete and work it as a portion of their system. The section from Bangalore to Channapatna, 35 miles, was opened to traffic on the 1st February 1881, and by the date of the Rendition, the 25th March, a farther length of 23 miles was opened, as far as Mandya. In these two months 20,749 passengers travelled by the line and the total earnings were Rs. 13,219.

PUBLIC INSTRUCTION

The acquisition of learning and the imparting of knowledge have always been held in the highest esteem by the Hindus. But instruction seems never to have been regarded as a duty of the State; it was left to the voluntary principle. That it was not neglected there is abundance of evidence, and Nripatunga, writing in the ninth century, says expressly of the Kannaḍa people that they knew how to teach wisdom to young children, and even words to the deaf. In the note to p. 575 above, also, it will be seen that a schoolmaster was sometimes provided among the members of the Village Twelve. Endowments were freely given for teaching, and among the Jains, to whom belongs the credit of first using the vernacular languages for literary purposes, and who in their formula specially reverence the upádhyáyas or teachers, the highest merit was attached to gifts for three objects—shelter, medicine and learning. Under the Hoysala kings we find the minister Perumála, in the thirteenth century, endowing a college, in which, besides professors to impart instruction in the Rig-veda, there were to be masters for teaching boys to read Nágara, Kannaḍa, Tiguḷa and Arya.[1]

[1] *Ep. Carn.*, Mysore I., T.N. 27.

The higher branches of learning were entirely in the hands of the clergy. In the fifth century we find a Kadamba travelling all the way to Kánchi in order to pursue his studies in advanced subjects (*see* p. 298). In the same manner, Akalanka, in the eighth century, went to the Bauddha college at Ponataga (near Trivatur in North Arcot). The Lingáyits followed the Jains in making provision for the instruction of youth, but with more of sectarian purpose; so also the Muhammadans, in the *maktabs* attached to mosques.

Female education, in the modern sense of the word, was non-existent. But girls of learned families were not left wholly without instruction. Thus we find Nágavarma addressing the verses of his Chhandombudhi, or work on prosody, to his wife. An ancient inscription in the Kolar District records the death of the learned Sávinemma, daughter of Nágárjunayya. Then we have the instance of Honnamma at the court of Mysore in the seventeenth century (*see* p. 501). But such cases were exceptional, like that of the celebrated Pandita Ramábái of the present day, who was taught Sanskrit by her father in the wilds of Gangámúla in the Kadur District.

The instruction in indigenous schools did not aim at anything beyond the elements of reading, writing and arithmetic, and generally resulted in a marvellous cultivation of the memory. Reading was from manuscripts on palm leaf. The first lessons in writing were on the sand, with the finger: after some progress had been made, blackened boards were used, written on with potstone. Arithmetic consisted principally of the *memoriter* repetition in chorus, led by the head boy, of endless tables of fractional and integral numbers, useful for mental calculation in ordinary petty business transactions. The three days before new and full moon are unlucky for study, and the schools are then closed:[1] also on numerous festival days. Discipline is maintained by a number of cruel and often grotesque punishments, which are now being given up. But the cane remains, and is the symbol of the schoolmaster's office. The masters are generally supported by small payments and perquisites in kind, or by a contract for a certain period with some influential resident. It was

[1] The thirteenth-day ceremony, before closing the school for the three days, will serve to illustrate the style of these schools. It consists of the boys, after offering flowers and repeating verses in honour of the goddess of learning, prostrating themselves before the piled-up school apparatus, surmounted by the master's cane. This they do successively in the following manner: holding the left ear between the right thumb and forefinger, and the right ear between the left thumb and forefinger, each boy stoops down and taps the floor with his elbows. Parched rice is then distributed, purchased out of the pice the boys have brought, and fruit with *pán supári* are presented to the master.

always the custom for the schoolmaster at the Maharnavami festival to perambulate the streets with his pupils gaily dressed, who performed the stick dance and recited humorous verses or dialogues, in all of which they had been trained for some time before. In return for these entertainments the masters used to pocket considerable sums as presents from the parents and friends of the boys. But the practice is falling out of vogue.

The course of education for advanced students begins with literature, comprising the study and committal to memory of certain standard poetical works. This is followed by a course of science, either logic or grammar. Eventually philosophy and the vedas may be made the subject of study. The training of students in the monasteries is specially designed to prepare them for public discussion of sectarian or philosophical doctrines.

The formation of Educational Departments in the different provinces of India had its origin in the celebrated despatch from the Court of Directors of the East India Company, dated the 19th of July 1854. Correspondence on the subject passed between the Government of India and Mysore during 1855, and towards the close of the following year a scheme of education was drawn up by the Honourable Mr. Devereux, Judicial Commissioner, which received sanction on the 6th of February 1857.

The previous steps taken by the Mysore Administration towards promoting education had been to supply funds to the Wesleyan Mission for the establishment of schools at the principal District head-quarter stations and for the erection of premises. The oldest was a Canarese school at Túmkúr, established in 1842. One was opened at Shimoga in 1846. In 1851 was established the Native Educational Institution in Bangalore, for instruction in English, with a Government grant of Rs. 800 a month; and English schools in 1852 at Túmkúr and Hassan, and in 1854 at Shimoga, these three together receiving about Rs. 500 a month. Besides these, were two schools at Bangalore of a special character, supported by Government, the Mutucheri School for children of pensioned European soldiers (now St. John's District Schools), and the Tamil Hindu Female School. At Mysore the Maharája maintained an English Free School. The entire Government expenditure on education in 1855 was about Rs. 16,500 a year.

"On the whole"—observes Sir Mark Cubbon of this period—"it must be admitted that the Administration of Mysore makes no particular show under the head of education. In an abstract point of view this is of course to be regretted, but subject nations are not kept in order and

good humour on abstract principles, and it has long been the opinion of some, and is rapidly becoming the opinion of many, that the efforts which have been made by Government to extend the blessings of education, and by tests and examinations to secure the services of enlightened men even in the lowest posts, are not calculated to be so fully appreciated as they ought by any class of the community."[1]

The new scheme contemplated the establishment of 80 Vernacular schools, one in each taluq, of 4 Anglo-Vernacular schools, one in each Division, and eventually of a Central College. For the training of teachers, 2 Vernacular Normal Schools were provided, and rules framed for grants-in-aid to private institutions. For examination of the schools, there were to be 2 Inspectors, 4 Deputy Inspectors, and 20 Sub-Deputy Inspectors. An assignment of $1\frac{1}{4}$ lakh per annum was made for the Department, of which 5 per cent. was allotted for grants-in-aid. In pursuance of these arrangements, a Director and an Inspector were first appointed. In 1858, a High School affiliated to the Madras University was established at Bangalore, the sum paid to the Native Educational Institution being withdrawn; while the Túmkur, Shimoga and Hassan Schools were taken over by Government, forming the basis of Divisional Schools, the Maharája's School at Mysore occupying the place of a fourth.

In the matter of establishing Vernacular schools, it was designed to leave the initiative in the first instance with the people. Schools were to be established only in places from which applications for them were received, and an undertaking entered into that the prescribed fees would be paid. Should no such application be forthcoming, the State was to move in the matter, by setting up a few schools experimentally in those towns which appeared the most favourable for the purpose, in order that the public might be familiarized with the scheme. Should even this fail to draw sufficient attention to the subject of popular education, an official notice was to be published that no candidate would be eligible for any Government employment of which the salary was Rs. 6 a month or upwards, who could not read and write his own vernacular. A powerful incentive, it was considered, would thus be provided for obliging the people to send their children to school. But although for two years not a single school was applied for, matters never went to this length. During 1859-60 fifteen applications came in from different taluqs. The end aimed at in the system of Government education at the period referred to was expressed by Sir Mark Cubbon in the following weighty words: "While the higher and more

[1] These views, it is just to add, bear date in the time of the Mutiny.

ornamental parts of education are by no means neglected, the greatest care is taken to store the pupil's mind with the knowledge which will prove most advantageous to him in his passage through life, and above all which will tend to reconcile him to his condition, and teach him to act uprightly and speak the truth."

In 1861 a Normal School was established at Bangalore, with English and Canarese branches, and in 1862 an Engineering School, for the purpose of training subordinates for the Department of Public Works. In 1863 the Educational Department, which was at first under the Judicial Commissioner, became separate. In this year the first candidate from Mysore matriculated from the High School: but it was not till 1865 that the University course of study was formally adopted. In 1866 the growing number of schools made it necessary to appoint an Inspector, an office which had been vacant for five years, and this resulted in a proper graduation of the various schools, the introduction of prescribed courses of study (which in the higher class of schools were designed to lead to matriculation), and the institution of an examination for teachers' certificates in the Normal School, thereby considerably raising the character and standard of teaching throughout the country.

Thus far, higher and secondary education had principally received attention, when, in 1868, the Hóbli School system, providing a comprehensive scheme of primary education for the masses, was introduced, marking an era in the development of the Department. A general estimate showed, that allowing for schools of all kinds, 200,000 boys alone of an age to attend school, not counting girls, were without ostensible means of instruction. For the numerous classes of traders, ryots and minor officials who lived out of the principal towns, all the instruction available was that imparted in the indigenous schools, scattered over the country in more or less abundance. The teachers were, with few exceptions, illiterate, and possessed very slender claims, if any, for their office other than that acquired by hereditary succession to it. Ignorant as they often were, however, and incompetent, they were regarded with respect by the people among whom they and their forefathers had lived; and it was certain that any popular scheme of education in which these men should have been set aside or supplanted would have encountered a formidable resistance which would have been fatal to its success. On the other hand, by recognizing and making use of them, the sympathy of the people was enlisted in favour of the new project.

The system proposed was to establish a school for boys and girls in each hóbli or taluq sub-division, the estimated number of hóblis being

645, with an average area of 41 square miles, and a population of 6,040 persons. The masters were to be men selected from among the teachers of existing indigenous schools, and trained for their work in normal schools, of which one was provided for each of the three Divisions. While under training every man was to receive a maintenance allowance of Rs. 5 a month, and on appointment to the charge of a school his salary was to be Rs. 7, with prospect of promotion. Care was taken to nominate the men as far as possible to the localities in which they were known and thus had influence. The schools were to be examined three times a year by Sub-Deputy Inspectors, of whom one was designated for each of the eight Districts, and Local Committees of influential residents in each hóbli were further to exercise a general supervision. No fees were to be levied in the schools, but the education would be paid for by a cess. The people, however, were expected to build or provide premises as an earnest of their desire for the schools. Night classes were to be formed for the benefit of those who were unable to attend school during the ordinary hours of labour, students in these classes paying a fee to defray the expense of lights.

To meet the cost of the scheme, a cess of 1 per cent. was intended to be levied as the land settlement in each District was completed by the Survey Department. But subsequently the Local Funds being constituted on the basis previously described, in 1872–3 the proportion of 24 per cent. from the entire Local Fund cess was allotted for Hóbli and Village schools. This admitted of the expansion of the scheme, which had all along enjoyed marked popularity and success, and an aggregate of 750 such schools was thus provided for, with an examining staff of 15 Sub-Deputy Inspectors.

In 1875 the upper department of the Bangalore High School was formed into a Central College, and in connection with it a School of Engineering and Natural Science was established on an entirely new footing, for the purpose of training selected Natives for both the officers' and subordinate grades of the Public Works, Forest and Revenue Survey Departments.

Meanwhile education by private bodies had been encouraged by a liberal system of grants-in-aid, subject to Government inspection. The number of private schools thus aided by the State continued greatly to multiply, and the character of their instruction, influenced by the general elevation of that imparted in Government institutions, was vastly improved. The Department in this manner succeeded in bringing within the scope of its operations and enlisting the sympathy of all the educational agencies at work in the country, whether

European or native, together with the co-operation of the learned classes.

The following figures will serve to illustrate the growth and expense of the Department in two decades, and before and after the allotments made from Local Funds :—

Year.	No. of Schools.	No. of Pupils.	Charges to Government.	Receipts from fees and other sources.	Net cost to Government.	
					Total.	Per Pupil.
Before the formation of the Educational Department.						
					Rs.	Rs. A. P.
1855-6	8	1,108	16,580	2,566	16,580	14 15 5
After the formation of the Educational Department.						
Government Schools.						
1862–3	13	990	29,729	3.517	26.212	26 7 7
1865-6	49	2,408	49,188	12,677	36,511	15 2 7
1872–3	659	19,497	1,37.855	1,10,785	27,070	1 6 2
1875–6	730	27,711	1,84,533	1,31,387	53.156	1 14 8
Aided Schools.						
1862–3	14	1,383	7,940	6,268	7,940	5 11 10
1865-6	33	3.234	25,561	29,418	25,561	7 14 5
1872–3	98	6,900	41,109	77,225	41,109	5 5 10
1875–6	114	8,598	46,721	78,769	46,721	5 6 11

In addition to the above there were reckoned to be at this latter date 1,350 private unaided schools, with 17,882 pupils.

A scheme for Industrial training for Europeans and Eurasians was introduced in connection with the Anglo-Indian Aid Association. A grant of Rs. 200 a month was made to it from the 1st January 1876, on condition that 40 youths should be on the rolls, of whom at least two-thirds must be under definite engagement as apprentices. Under this scheme 22 boys were under training in an Industrial school at Bangalore, and 17 others apprenticed to local firms. The Apprentice Act was also introduced into Mysore in connection with the movement. Besides the above, 11 junior boys and 21 girls were under subordinate training. The scheme, however, did not outlive the famine.

The Educational Department was controlled by a Director of Public Instruction. There were three principal circles of inspection, two in charge of Inspectors, and the third in charge of a Deputy Inspector. Subordinate to these were 2 Sub-Deputy Inspectors for Hindustani Schools, and 15 for Hóbli and Village Schools.

But the famine affected the Educational in common with all other

Departments. In April 1878 the Hóbli Normal Schools were closed. In April 1879 the two European Inspectors were transferred to other parts of India, and their places were supplied by four native Deputy Inspectors, on much lower pay, one for each District. The previously existing Deputy Inspector was also made Assistant in the Directors' Office and had charge of the Town and Cantonment of Bangalore. As another measure of economy, all charges for vernacular education were thrown upon Local funds, thus relieving the State revenues of all expenditure except what was incurred for English instruction.

Under new rules of affiliation the Central College and Bishop Cotton's Schools and College in Bangalore had been affiliated to the Madras University up to the B.A. Examination; and the Maharája's High School, Mysore, and the Shimoga High School up to the First in Arts Examination. The School of Engineering and Natural Science in Bangalore was at the same time affiliated in Civil Engineering. Its abolition on the plea of economy had been proposed, but the Government of India did not approve of this step. The uncertain demands, however, of the public service in view of impending changes, made it necessary to give it up on a collegiate scale in 1880. Scholarships were in lieu granted to advanced students to enable them to complete their Engineering course in the large Colleges at Madras or Poona. The lower students continued to be trained as Overseers in the Public Works Department and for subordinate appointments in the Topographical and Revenue Survey Departments. Botanical classes were also opened to prepare subordinates for the Forest Department; and a Medical School was formed in connection with the Bangalore Petta Hospital, providing a three years' course of study in preparation for Hospital Assistants.

The returns for 1880–1 illustrate the progress of the Department up to the time of the Rendition. There were then 899 Government Schools, with 33,287 pupils; and 188 Aided Schools, with 9,370 pupils: or a total of 1,087 schools, containing 42,657 pupils, of whom 38,713 were boys and 3,944 girls.[1] According to race, 1,142 were Europeans or Eurasians, 1,051 Native Christians, 35,757 Hindus, 4,330 Muhammadans, and 377 others. The total expenditure was Rs. 3,91,028, of which only Rs. 1,58,423 was met from State Revenues,

[1] The unaided indigenous schools may be put down at 1,000, with 15,000 pupils. In addition to these were the Regimental schools, under the military authorities, which were 7 in number, containing 970 pupils. These being added, which, seeing that the military are included in the census of the population, is but just, we obtain a grand total of 58,627 pupils (54,480 boys and 4,147 girls) under instruction, or 1 in 71·4 of the population.

the remainder, or Rs. 2,32,605, being defrayed—Rs. 1,40,976 from Local and Municipal funds, Rs. 57,250 from school fees, and the rest from private sources.

The following are further details relating to the several grades of instruction :—

Grade.		Schools.	Pupils.	Government expenditure.	Other expenditure.
University Education	...	4	132	22,720	1,160
Secondary ,,	...	166	3,084	63,137	40,461
Primary ,,	...	907	38,296	145,237	48,758
Special ,,	...	10	1,145	7,328	1,250

The results of examinations in that year show that 6 students passed the B.A. examination, 16 the First in Arts examination, 126 the Matriculation examination, and 186 the Middle School examination.

MEDICAL

The medical institutions maintained by the Mysore Government in 1881 were the following :—

General Hospitals, with dispensaries attached :—Bowring Civil Hospital, Bangalore ; Raja's Hospital, Mysore ; Civil Hospital, Hassan.

Dispensaries, with wards for in-patients :—Kolar, Hassan, Chitaldroog, Chikmagalur, Tumkur ; for out-patients only :—Bangalore Petta, and eleven taluq headquarter stations. One at Shathalli, belonging to the Roman Catholic Mission, was aided by a Government grant.

Special Hospitals :—Lunatic Asylum, Leper Hospital, both at Bangalore. Maternity Hospitals at Bangalore and Mysore, newly established.

Temporary special Famine Hospitals were opened in 1877.

The Surgeon to the Mysore Commission was stationed at Bangalore, and had charge of the Bowring Civil Hospital and the two Asylums, as well as the general control of vaccination, while another medical officer was Superintendent of the Central Jail and had the supervision of the Petta Dispensary. There was a Civil Surgeon at the headquarters of each of the other two Divisions, who was also Superintendent of the local Jail and Inspector of all medical institutions within the limits of the Division. The Deputy Surgeon-General, Indian Medical Department, for Mysore and the Ceded Districts, personally inspected the institutions at headquarters at Bangalore, and others which happened to lie in the routes of his official tours. He also acted as Sanitary Commissioner and Registrar of Vital Statistics.

During the period of the Maharája's government there was a Darbar Surgeon attached to the Court, who superintended His Highness' Hospital at Mysore. After the assumption of the government by the British, a dispensary was established in 1833 in a room in the Com-

missioner's Office in the Fort of Bangalore, and in 1834 one in the Cantonment. In 1839 a Hospital and dispensary were commenced in the Petta on a small scale, but proved so popular and useful that a suitable building, with accommodation for 50 patients, was erected in 1847. In 1849 the Fort Dispensary was also provided with a proper building. In 1850 a Hospital was opened at Shimoga. In 1852 a Hospital for 70 in-patients was established in the Cantonment Bazaar, and the Petta Hospital was enlarged. A further addition to the latter was made in 1856, and in that year the Yelwal Dispensary, established in connection with the Residency, was transferred to Hassan. In 1866 the Petta Hospital was further enlarged, but meanwhile the Bowring Civil Hospital was under erection in the Cantonment, on the plan of La Riboisière in Paris, which admits of the segregation of the several castes of people and of different classes of disease. It was occupied in 1868, and in 1872 the Petta Hospital was converted into a Dispensary, in-patients being transferred to the Bowring Hospital.

The numbers under treatment by the Medical establishment steadily increased every year, the totals for two decades being as given below, as well as those for 1880–1:—

		Bangalore.		Outstations.		Total.
		In-patients.	Out-patients.	In-patients.	Out-patients.	
1855–6	...	1,696	11,243	381	6,198	19,518
1865–6	...	1,800	18,711	—	—	—
1875–6	...	1,482	47,604	1,863	68,044	118,993
1880–1	...	1,688	46,040	1,827	151,647	156,989

The diseases for which treatment was chiefly sought at the medical institutions of Government were skin diseases, fevers, diseases of the eye, injuries, dysentery and diarrhœa, respiratory and venereal diseases. Among skin diseases, scabies was the most common; among fevers, the paroxysmal type; among affections of the eye, simple and catarrhal ophthalmia; among affections of the respiratory system, bronchitis was perhaps the most prevalent.

Fevers were the chief cause of mortality in the Province, not less than 30,000 deaths occurring from this cause alone annually, which, considering that this is not ordinarily a directly fatal class of disease, will convey some idea of the extent to which it prevailed. Dengue was a peculiar type that appeared in 1873 and reached its height in March. It was most severe in Mysore and Seringapatam, proving fatal in some instances.

Cholera carried off the greatest number of victims in 1866–7, when 18,504 deaths were reported from this cause. The cholera years since have been 1871–2, with 4,297 deaths, and 1875–6, with 3,139. The minimum of deaths from this disease was in 1874–5, when there were

only 2, 5 in 1868–9, 12 in 1873–4, and 51 in 1872–3. The outbreak of 1866 was attributed to the scarcity or famine, and was general. Of the course of the disease in 1870–1, the following remarks are taken from the Deputy Surgeon-General's report:—

The first cases of cholera were reported in April, and were supposed to have been imported from the Salem District, where, and in Southern India generally, the disease prevailed at the close of 1869 and commencement of 1870. The disease during 1870 fell with the greatest intensity upon the eastern Districts of the Province, and notably upon the Cantonment of Bangalore itself, a few ripples only of the storm-wave reaching the western Districts. There was an apparent lull altogether at the close of the year. The months of June, July and August were those in which the disease prevailed to the greatest extent. But at the close of January 1871, cases were reported from the western Districts, the disease having, it is alleged, been re-imported from the Western Coast, where it prevailed with some intensity at the close of the year 1870. From this period the disease extended its ravages. It invaded the Districts of Mysore and Hassan; and the mortality was heavy. It was not till the 15th February that undoubted evidence was obtained of the disease having appeared at Hunsur in an epidemic form, and it was reported to have been introduced by travellers from Cannanore. From Hunsur it spread to Fraserpet, being introduced, it is alleged, by cartmen frequenting the distillery there. About the time of its appearance at Hunsur, reports came in of deaths in different taluqs of the Ashtagram Division. The first death in the town of Mysore occurred on the 22nd February, and the disease speedily spread and expanded itself very much in the Ashtagram Division. A few deaths occurred in towns on the high road to Bangalore, on dates subsequent to the first death at Hunsur. The disease, in fact, occupied principally, indeed almost entirely, the Districts which were spared in 1870, while those which experienced the main incidence of the disease in that year escaped in 1871. The Districts of Mysore and Hassan suffered to the greatest extent. The deaths in the former amounted to 2,156, or in the ratio of 2·9 per mille of population. But the Yelandur Jágir suffered far more than any taluq under the direct administration of the Mysore Government. The deaths therein were 708 out of a population of 25,765 souls, or in the ratio of 27 per mille.

In regard to the question of invasion and propagation, whether by human intercourse or by prevailing currents of wind, every medical report received speaks of introduction from infected localities by travellers. At the close of 1870 the disease was known to prevail on the Western Coast, and at the time the first warning notes of its possible invasion by one or other of the main lines of intercommunication were sounded, the prevailing winds were easterly; north of east in January, east veering to south-east in February and March. Now in these months the disease certainly advanced in an easterly direction, against the prevailing currents of wind. But later in the year, when the disease attained its acme of intensity in the months of June and July, strong south-west winds prevailed. We do not notice as coin-

cident with the setting in of the south-west monsoon any extension of the epidemic to the eastward. On the contrary, the eastern Districts which had felt the weight of the pestilence in 1870, almost entirely escaped. In the Nundidroog Division, for instance, the deaths were only in the ratio of 0·46 per mille of population.

An interesting fact may be noted in connection with the extensive prevalence of the disease in Mysore, Seringapatam, Ganjam and surrounding villages. On the fact becoming known to the Officer commanding the 30th Regiment at the French Rocks, that small station was as far as possible put under quarantine. A cordon of sentries was thrown out round the station, travellers were diverted, and communication between the inhabitants of the bazaars and neighbouring infected villages as far as possible prevented. The station entirely escaped, while villagers within a few miles were suffering heavily. Had the extension of the pestilence been due to aërial currents, the French Rocks could scarcely have escaped, while the measures taken were precisely those calculated to prevent its introduction by human intercourse.

In this year the special sanitary regulations now in force were brought into operation at all fairs, religious festivals and other large gatherings of people.

The spread of cholera in 1875 is thus described. Two sporadic cases occurred in May in the Hassan District, and on the 14th July the disease, imported from Coimbatore, appeared at Gundlupet, 70 miles south of the town of Mysore. Subsequently the Province was invaded by cholera imported from the Bellary and Kadapa Districts. In September the violence of the epidemic reached its acme. In this month all the Districts excepting three, in October all but one, and in November one and all, were affected. In December there was a marked reduction in the aggregate of mortality. Cholera attacked Bangalore in September, and in November the mortality amounted to 225, and December to 95. Only 13 casualties occurred in the Town of Bangalore. The ratios of death per mille in the Cantonment and Town of Bangalore were 3·89 and ·21 respectively. In the town of Mysore the mortality was 534, equal to 9·24 per mille of the population. Shimoga lost 11·69 per mille from the epidemic. The total mortality registered amounted to 3,139, of which 1,828 were males and 1,311 females. The largest mortality occurred in the Mysore District.

The deaths from small-pox, which had ranged from 350 to 400 in the three years previous, rose to 1,494 in 1871–2, and to 4,532 in 1872–3, when the epidemic reached its height. The numbers progressively declined each year since, being 3,052 in 1873–4, 1,535 in 1874–5, and 544 in 1875–6.

Vaccination.—Private inoculators are stated to have been formerly pretty numerous, but by 1855 they had been completely deprived of their occupation by the preference given to the Government vacci-

nators. These were 54 in number, and were transferred from taluq to taluq as necessary. There were three grades, on the respective pay of 8, 10 and 12 rupees a month. Each vaccinator was expected to vaccinate 10 persons for each rupee of his pay, or suffer a proportionate fine. A small money reward was given at the end of the year to the most active vaccinator of each Division. Under this system the number of operations increased with suspicious rapidity. The total of 62,257 in 1855–6, rose to 91,404 in 1857–8, and was little below a lakh in 1862–3. It became notorious that, with the connivance of the village officials, the verification lists sent in by the vaccinators were frequently fictitious. The project was then formed, in 1865–6, of making them work in a more systematic manner through their ranges, proceeding from village to village in regular succession; and as by this mode of proceeding some difficulty might be found in making up the required complement, the stipulation as to the number of operations to be performed monthly was withdrawn. The total, which had fallen in that year to 88,054, went down in 1866–7 to 73,793. Since that time it steadily rose, until in 1875–6 it again touched a lakh, and has, with some variations in the famine years, remained at near that figure. In 1872–3 a system of inspection, by the apothecaries attached to the camps of Deputy Commissioners, was introduced as a check, which appears to have worked well. There were 84 Taluq vaccinators in 1880–1, and four in the Bangalore Municipality. The medical subordinates in Hospitals and Dispensaries also vaccinated.

Special Hospitals.—The Leper House was opened in the Petta in 1845; the building, however, was small and badly situated; a large one was therefore built in a better spot in 1857. The Lunatic Asylum was opened near the Petta Hospital in 1850, the inmates being removed from a smaller place of custody which had existed two years previously in the Cantonment, and a few years after the old Petta Jail was added to the accommodation.

In the Leper Asylum there were 26 inmates at the close of 1874; in 1875, 19 were admitted. Of these 7 died, 3 absconded, and 3 were discharged at their own request. The population of the asylum constituted about one-fourth of the total number of lepers known to have resided in the Town and Cantonment of Bangalore. The gurjun oil treatment was fairly carried out during the year, and the Deputy Surgeon-General remarked that "as a therapeutic agent, it had been found to improve the state of the skin, to assist in healing up leprous sores, to corroborate somewhat the general health, and in some cases to recall sensation to anæsthetic spots, but it had failed to produce any permanent amelioration or to change for the better the

true leprous cachexia. Most of the patients were, however, averse to the external use of the oil."

In the Lunatic Asylum no restraint was practised, further than confining a patient to his own room when he became violent or excited; and as it is believed to be an important point in the treatment of the insane to find for them both mental and bodily occupation, those whose health would admit of it were regularly employed in some sort of out-door labour, consisting chiefly of gardening, rope-making, &c. For the latter two years, the males and females were allowed to mix together freely in the garden without any bad results; on the contrary, it was found that they took scarcely any notice of each other. Nearly half the cases of mental derangement were attributed to the abuse of bangh, opium and intoxicating drugs.

MILITARY DEPARTMENTS

The Subsidiary Treaty of Seringapatam concluded in 1799, provided in its Second Article for the maintenance, within the Territory bestowed upon the Rája of Mysore, of a British force for the defence and security of His Highness' dominions, on account of which the Mysore State was to pay a subsidy of 7 lakhs of star pagodas (equal to $24\frac{1}{2}$ lakhs of rupees) annually, the disposal of this sum, together with the arrangement and employment of the troops to be maintained by it, being left entirely to the East India Company. The Third Article provided, that in the event of hostile operations becoming necessary for the protection of either the Company's or the Mysore territories, the Rája should contribute towards the increased charges a reasonable amount, as determined by the Governor-General with reference to the net revenues of the State.

British Subsidiary Force.—Under the first of these provisions, Mysore was garrisoned by troops of the Madras Army. The Mysore (Military) Division in 1881 included Coorg and the Nilagiri Hills. The headquarters were at Seringapatam till 1809, since when they have been established at Bangalore. The only other military station occupied in Mysore in 1881 was that of the French Rocks, 4 miles north of Seringapatam; Harihar (Hurryhur), on the Tungabhadra, the last post given up, was abandoned in 1865.

Her Majesty's forces at Bangalore consisted in 1881 of the following troops:—Headquarters and a battery of Royal Horse Artillery, and two field batteries of Royal Artillery; a regiment of European Cavalry; a regiment of European Infantry; headquarters of Royal Engineers,

and 4 companies of Sappers and Miners; a regiment of Native Cavalry; and 3 regiments of Native Infantry. At the French Rocks was stationed a regiment of Native Infantry, with a detachment at Mysore. The total number of fighting officers and men in March 1881 (not counting the Native Cavalry, which came on the strength later in the year), was 4,377 of all arms, 1,548 belonging to the European Force, and 2,829 to the Native Force. The total cost during 1880–1, including contingencies, was Rs. 1,871,781.

Commencing with Colonel Arthur Wellesley, the illustrious Duke of Wellington, the Mysore Division has been commanded by a distinguished line of Generals. The most disastrous event in its annals was the short-lived mutiny of British Officers in 1809. This arose out of certain obnoxious orders of the Madras Government, which were considered to entrench upon the privileges of the army, in consequence of which the military in many stations of Southern India refused to obey the Government. Prominent among the malcontents was the officer commanding at Seringapatam, who took military possession of the fortress on the 29th July, and stopped parties escorting treasure. The force at Chitaldroog seized the treasure there and marched for Seringapatam, but was dispersed[1] by troops from Bangalore. But the mutiny had lasted less than a month, when the officers returned to their allegiance on the 22nd August. In 1857 it was the British regiment withdrawn from Bangalore—the 1st Madras Fusiliers—which, under the since well-known designation of Neill's Blue Caps,[2] saved Allahabad, avenged Cawnpore, and took a prominent part in the relief of Lucknow, the gallant Neill falling in the assault. In 1879 a large proportion of the Force was engaged on service in Afghanistan, and in 1881 the 14th Hussars went on service to the Transvaal in South Africa.

Mysore Local Force.—The Mysore Contingent consisted of Cavalry and Infantry, or Savár and Bárr as they were termed. They were commanded by Native Officers, and the whole force was under the control of the Military Assistant to the Chief Commissioner. The disposal made of the Sultan's army on the capture of Seringapatam in 1799, and the military arrangements of the new Government, have already been described (p. 601). During the Mahratta War, a body of the Mysore Silahdar Horse operated in 1802 and 1803 with General Wellesley's army. The levies had been increased for this purpose, and on the return of the troops, the sudden disbandment of the extra levies

[1] On the 10th of August, near Webbe's Monument, since then called the *rana kambha*, or war pillar.

[2] From the colour of the *pagri* worn by the men round their helmets.

being no less impracticable than impolitic, it was gradually effected. Including the cost of this, the whole expenditure incurred by the Mysore State in connection with the Mahratta War amounted to a little less than 5 lakhs of star pagodas.

In consideration of this auxiliary, a Supplementary Treaty was entered into in January 1807, whereby all pecuniary claims under the third article of the treaty of 1799 were remitted, with retrospective effect; the Rája being required in future to maintain a body of 4,000 effective Horse (numbering about 500 Bargeer and the rest Silahdars), ready to serve with the British Army whenever required, the British Government bearing the charge of batta for service in the field out of the country. It was also agreed that the force should be increased when required by the British Government, the latter paying a fixed sum, with batta, for each extra horseman.

Silahdars.—The Savár or Silahdar Horse formed the body of irregular cavalry kept up under the above treaty. They several times served beyond the frontiers of Mysore as auxiliaries in the campaigns of the British Army in Southern India, as also in assisting to maintain order.

In 1802, 800 Silahdars accompanied Colonel Stevenson in the expedition to Manantoddy. In 1802–3, 2,000 Silahdars accompanied General Wellesley through the Deccan towards Poona. In 1809–10, 2,000 Silahdars marched with Colonel Barry Close against Bavoo. In 1815, 500 Silahdars accompanied the expedition to Karnul. In 1815, the number of regiments maintained was eleven, and for a period of nearly four years a force of 4,500 Silahdars were employed under General Hyslop, &c., against the Peshwa. In 1824–5, 2,000 Silahdars accompanied the force against Kittore, and in 1826, 1,500 marched into the Dharwar country.

Subsequent to the assumption of the country, they were also frequently employed. In the Canara insurrection of 1838 they were required to cross the frontier and afford assistance. In 1845–6, 1,000 horse were sent to Vizagapatam; and subsequently on several occasions considerable detachments were employed in the Bellary and other adjoining Districts. In 1857 the Government of India directed that a body of 2,000 should at once proceed to Hindustan. This order was subsequently countermanded, but a similar number were employed in the districts to the northward of Mysore as far as Sholapur, and took part in the minor affairs which arose during 1857–8 in those parts of India. Medals for service in the Mutiny were obtained by 378 men of the Silahdars.

As there were no circumstances calling for the continued maintenance of the full complement, the number of Silahdars from time to time varied from 2,000 to 4,000, accordingly as required for field service or not. The number and efficiency of the Force, however,

gradually declined, owing to low pay, bad horses and arms, and the corrupt practices of the Bakshis (as their commanders were called). No proficiency in horsemanship or in the use of arms was insisted upon, while the office of Silahdar was almost regarded as hereditary. This state of things drew attention, and a good deal was done to improve it, such as the adoption of a uniform, the arming of the men with a serviceable lance, providing lines for each regiment, which did not previously exist, the establishment of a Chanda Remount Fund, which freed the service from its former precarious character, the raising of the pay of each man from 20 to 26 Rs. per month (one regiment of the service then maintained being reduced to provide funds for this most necessary measure), and lastly, the introduction of a new and better system of accounts and payment. Nevertheless much remained to be accomplished to render the Silahdars even passably efficient as an arm of the local militia.

In 1873, detailed arrangements were ordered for rendering the Silahdars a compact body of efficient horsemen. In the first place it was considered that the numerical strength of the Force was much more than was called for by the requirements of the Province, and that 1,000 well-disciplined and efficient men would serve all purposes during the times of peace. Orders were accordingly issued for the gradual reduction of the Force, to consist in future of three regiments, the strength of each regiment being as noted in the margin. The reduction was effected by offering inducements to retire, in the shape of pensions. At the same time a carefully graduated scale of invalid pensions was made applicable to the Silahdars for the future, thereby giving greater stability to the service. The Force was properly drilled, under the supervision of a specially appointed European Adjutant, aided by drill instructors from the Madras Light Cavalry. They were supplied with saddles of English pattern, and equipped with an improved style of sabre. Boat cloaks were supplied to both cavalry and infantry. In 1880–1 the strength of the Force was 1,224, including 42 commissioned and 116 non-commissioned officers. About $\frac{3}{5}$ths of the Silahdars were Muhammadans, and the remainder chiefly Mahrattas, with $\frac{1}{10}$th Brahmans and Rajputs. The three regiments were stationed respectively at Bangalore, Mysore, and Shimoga, with detachments in certain taluqs.

1 Regimentdar.	1 Kettle Drummer.
6 Risaldars.	330 Savars.
6 Jamadars.	1 Farrier Major.
1 Sarzaffardar.	6 Farriers.
36 Dafedars.	1 Foot Mahaldar.
1 Nishanbardar.	1 Sarpeshkar.
1 Trumpet Major.	6 Peshkars.
6 Trumpeters.	4 Jhandavals.

The Chanda Fund system was first introduced in 1869. Its principal

features were, that each Silahdar was to pay $1\frac{1}{2}$ R. monthly towards the Fund, in consideration of receiving from it Rs. 200 towards the purchase of a remount, on the death or rejection of his horse. These were afterwards altered in favour of the system in force in the Bengal Cavalry, with Stable and Stallion funds in addition. Each Silahdar then paid Rs. 2 a month towards the Fund, from which fresh horses were maintained, and on the death or rejection of his horse, a Silahdar contributed but a month's pay, without reference to the value of the horse which he received. Precautions were, of course, adopted to prevent an undue advantage being taken of this benefit, and the working of the system was satisfactory, and popular among the Silahdars. The horses for the force were procured from Candahar and Persian dealers, or were the produce of the mares in the force by Government stallions, of which there were 19.

Barr.—The Barr, or Infantry, was also a relic of Tipu's army. The strength of the force was 2,270 at the beginning of 1800; it was raised to 8,000 during the war of 1803–4, when the force was disciplined after the English pattern, and was 4,000 in 1817. On the transfer of the country to British rule, it was reduced to four regiments of 500 each. The strength of each regiment, omitting servants, was as given in the margin. In 1879 the 4th regiment was disbanded, as a measure of economy. The total strength in 1880–1 was 1,831, which included 67 commissioned and 213 non-commissioned officers. The duties of the Barr were confined to guarding the District and taluq treasuries, jails, &c. All four regiments, till 1870, were armed with old flint muskets. These were gradually exchanged for percussion muskets. In 1879, owing to the absence of most of the British force in Afghanistan, the Barr furnished guards for the Remount Depôt at Hosur.

1 Commandant.	1 Havildar Major.
1 Risaldar.	70 Havildars.
1 Adjutant.	20 Drummers and Fifers.
10 Subadars.	
10 Jamadars.	500 Privates.

Bangalore Rifle Volunteers.—A Volunteer Force was raised at Bangalore in 1868, and was popular with the young men of the large Anglo-Indian community of this station. Three companies were here formed, in 1873 an additional company was raised in Mysore, and in 1875 a cadet company in Bangalore. The strength of the force in 1880–1 was 415, including 59 cadets. There were 55 extra efficients and 122 efficients. The corps was up to this time maintained at the cost of the Mysore revenues, but it was determined, on the Rendition, to keep it up in future as a charge on Imperial Funds.

Since the Rendition

After the Rendition, in March 1881, the issue of Annual Administration Reports was discontinued. But two Quinquennial Reports have been published, bringing down the information to 1891. And the Dewan's Annual Addresses, delivered before the Representative Assembly, though principally concerned with the revenues, contain brief references to the more salient changes and proceedings of the year.

The form of Administration continued to be virtually the same as previously under British rule, but with a preponderance of Native officers. At the head of the executive administration was the Dewan, under whom, as President, was the Council, composed of three members, whose duties have already been described (p. 442). In 1889 it was decided that two members should sit regularly to hear and dispose of all revenue matters coming before Government in appeal or revision, which by the new Land Revenue Code were excluded from the jurisdiction of the Civil Courts. In 1895, under the Regency, a list was issued of additional subjects referred to the Council, giving it a more effective share in executive control. Certain departments were placed under each member; the Council was ordered to meet regularly once a week, and specific rules of business were laid down. The constitution and functions of the Representative Assembly have been sufficiently explained on pp. 442–3.[1]

In pursuance of measures of retrenchment, the 8 Districts, containing 69 taluqs, which existed at the time of the Rendition, were in 1882 reduced to 6 Districts with 60 taluqs. At the same time, as a compensation, 3 Sub-Divisions under Assistant Commissioners, and 17 sub-taluqs under Deputy Amildars, were formed. But these changes proved to be of great inconvenience. In 1886, therefore, the 8 Districts, with somewhat altered limits, were restored, with 66 taluqs; and in consequence of this step only 1 Sub-Division (French Rocks) and 10 sub-taluqs remained. In 1891 three more Sub-Divisions (Sagar, Closepet, and Chik Ballapur) were formed.

The various Departments were at first directly controlled by the Dewan, but as the finances improved, and the work of the Departments expanded, several Heads of Departments were appointed, such as for Forests and Police in 1885, for Excise in 1889, for Muzrai in 1891, &c., though different appointments were often doubled up under one head.

[1] That the members appreciate their position is evident from their voluntarily relinquishing, since 1890, the travelling allowances they used to receive for attending at Mysore.

In describing the details of Administration since the Rendition, it will be convenient to follow the classification prescribed since 1871 for Government Annual Reports, namely, Administration of the Land, Protection, Production and Distribution, Revenue and Finance, Vital Statistics and Medical Services, Instruction, Archæology and Miscellaneous.[1]

ADMINISTRATION OF THE LAND

The various land tenures having already been described, under the first head come the Topographical and Revenue Surveys and Inam Settlement.

The *Topographical Survey* commenced in April 1886, and was carried out by officers of the Survey of India under the orders of the Surveyor-General. Triangulation was completed in 1884–5, and the detailed topographical survey in September 1886. The total cost of the operations was 8¾ lakhs. The survey was on the scale of one inch to the mile, except in the case of the State forests, which were on the four-inch scale. The whole extended to 70 standard sheets of maps. Unfortunately the different redistributions of Districts and taluqs interfered with much of their utility.

Revenue Survey and Settlement.—The system of Revenue Survey and Settlement has previously been explained. The appointment of Survey and Settlement Commissioner was abolished, and the further operations were conducted by the Superintendent of the Revenue Survey, who also had charge of Inam Settlement. With this exception all the European officers were gradually retired or transferred elsewhere, their places being taken by Native officers on a reduced scale, selected chiefly from among Amildars of suitable attainments. These have proved to be efficient Assistants. The re-survey of coffee lands under the new system of settlement was carried out in 1883 and 1884. The entire work of measurement was completed in 1890, and the strength of the Department reduced. In 1895 there remained 2 taluqs for classification and 3 for settlement. The cost of the survey for the ten years, 1881 to 1890, was Rs. 21,57,683.

Inam Settlement.—The valuation of inam and kayamgutta villages for the purpose of calculating the quit-rent and local fund cess chargeable on them, was ordered in 1881 to be based on a survey. The Survey Department, however, valued the villages at the full assessment of the

[1] In 1892 a change was made in reckoning the official year, which was ordered to begin in future on the 1st of July, instead of the 1st of April as before; hence statistics for 1891–2 relate to 15 months.

whole culturable area, with an addition of 2 to 5 annas per acre for the unculturable. This was complained of by the inamdars, and orders were issued to value them at the survey assessment on lands under cultivation, with 25 per cent. of the assessment on arable waste. Pending the revaluation the old rates were levied. There are reckoned to be 2,095 such villages, and 1,010 had been settled up to 1895. The question of excesses in Minor Inams in Government villages of settled Maidan taluqs was finally disposed of in 1886, and 17,413 title-deeds for such inams had been issued up to 1895. Of quit-rent registers 53,756 were compared with the original inam registers and issued, out of 61,928 in the Province. The vexed question of the enfranchisement of Kodigi inams at $\frac{1}{2}$ or $\frac{1}{4}$ quit-rent was satisfactorily settled in 1888, on the general rule that such inams were granted for construction and upkeep of tanks, and not for mere upkeep only. These and some other miscellaneous settlements were carried out at a cost, from 1891 to 1895, of Rs. 1,21,744, the additional permanent revenue derived from the operations of the Department being Rs. 18,948.

PROTECTION

Legislation.—The change of Government rendered it necessary to revise the Acts already in force in Mysore (a schedule of which was appended to the Instrument of Transfer) word by word, to render them applicable to the altered state of affairs. The following Regulations have also, after consultation with local officers and publication in the official Gazette for public information, been, with the approval of the Government of India, passed into law:—

Regulation	
I of 1883	Mysore Civil Courts Regulation.
I of 1884	Mysore Chief Court Regulation.
II of 1884	To apply to Mysore the Code of Civil Procedure, Act XIV of 1882, in supersession of Act X of 1877, as amended by Act XII of 1879.
III of 1884	Mysore Legal Practitioners Regulation.
I of 1885	Yelandur Jágir Regulation.
II of 1885	To apply to Mysore, Act XVI of 1863, for levying duty on Spirits used exclusively in arts and manufactures, or in chemistry.
III of 1885	To amend the law relating to Excise Revenue.
I of 1886	To introduce the Code of Criminal Procedure, Act X of 1882, in supersession of Act X of 1872.

A separate Legislative Department was organized in January 1886, under an officer designated the Legislative Secretary. Since then the following Regulations have been passed:—

Regulation	
I of 1887	Hackney Carriages Act for the City of Bangalore.
II of 1887	To amend Regulation II of 1884.
I of 1888	To amend Regulation I of 1886.
II of 1888	To regulate the manufacture, possession, use, sale, transport and importation of Explosives.
III of 1888	To apply to the City of Mysore the Municipal Regulations of the City of Bangalore.
IV of 1888	To consolidate and amend the law relating to Revenue Officers and the Land Revenue.
I of 1890	To amend the Municipal Regulations of 1871 in force in the Cities of Mysore and Bangalore.
II of 1890	To amend Regulation I of 1884.
III of 1890	To declare the Imperial Standard Yard for the United Kingdom to be the legal standard measure of length in Mysore.
IV of 1890	To consolidate and amend the law relating to Loans of money by Government for Agricultural Improvements.
V of 1890	To provide for matters connected with the Census.
VI of 1890	To consolidate and amend the law relating to Arms, ammunition and military stores.
I of 1891	To amend the Mysore Land Revenue Code of 1888.
I of 1892	To amend the law relating to Fraudulent Marks on merchandise.
II of 1892	To provide Compensation to families for loss occasioned by the death of a person caused by actionable wrong.
III of 1892	To further amend Regulation IV of 1888.
IV of 1892	To regulate Labour in Factories.
V of 1892	To amend Regulation I of 1883.
VI of 1892	To amend Section 265 of the Indian Contract Act of 1872.
VII of 1892	To amend the Code of Civil Procedure.
VIII of 1892	To amend the Cattle Trespass Act of 1871.
I of 1893	For avoiding loss by the default of Public Accountants.
I of 1894	To amend Act XXV of 1867 for the regulation of Presses, &c.
II of 1894	To amend the Indian Penal Code.
III of 1894	To provide for the trial of offences against the Post Office Law.
IV of 1894	To amend the law relating to Railways.
V of 1894	To provide facilities for obtaining the evidence and appearance of Prisoners, and for service of process upon them.
VI of 1894	To further amend Regulation I of 1883.
VII of 1894	To further amend the law for the Acquisition of Land for public purposes and companies.
VIII of 1894	To amend the Indian Registration Act, III of 1877.
IX of 1894	Government Securities Regulation.
X of 1894	To prevent Infant Marriages.
XI of 1894	Relating to the Protection of Inventions and Designs.
I of 1895	For the Prevention of Cruelty to Animals.
II of 1895	To assimilate the laws relating to Post Offices.
III of 1895	Mysore Companies Regulation.

Police.—The direction of the Police was at first in the hands of the Dewan and the District officers. A Police Secretary was afterwards appointed, and in 1883 this position was filled by the officer who was also Education Secretary. In 1885 an Inspector-General of Police

was appointed, the same officer being also Inspector-General of Forests and Plantations, and Director of Agriculture and Statistics. The office of Police-Assistant Commissioners was at the same time revived, and these, one in each District, with the Superintendent of Police in Bangalore, acted under the general supervision of the Deputy Com. missioners. Amildars and Deputy Amildars continued at the head of the Taluq and Sub-Taluq Police, aided by Inspectors and Jamadars. At the end of 1891 the Police Department was reorganized. A Native officer was appointed as separate Inspector-General of Police, and Police-Assistant Commissioners were graded instead as Superintendents and Assistant-Superintendents of Police.

The Police force is composed of the Regular Police and the Village Police. The former includes District Police, City Police (of Bangalore and Mysore), Special Reserve Police, Gold Mines Police and Railway Police. The District Police, 4,522 strong in 1895, consists of the Taluq Police and the District Reserve force, the former occupying the various *thánas* for ordinary police duty, and the latter attached to the District Police office for special duties. The City Police numbered 533 in 1895, and form a separate body under different rules from the rest. The Special Reserve consists (in 1895) of 136 officers and men, selected for good physique and better paid, equipped and drilled than the others. They also go through a course of musketry. They were first enrolled in 1890. They are held ready for emergencies in any part of the country, and are employed in putting down organized dacoities and serious disturbances of the public peace. There are three detachments, located respectively at Bangalore, Mysore and Shimoga. The Gold-Mines Police are employed in Kolar and Hassan Districts in maintaining order at the mines. They numbered 70 in 1895. The Railway Police, 179 strong in 1895, forms a separate body directly under the Inspector-General, but except on the State Railway from Bangalore to Nanjangud, the Railway Police has now passed under British jurisdiction.

The actual strength of the Police force in 1895 was 507 officers and 4,670 men, or 5,177 altogether. Of these, 490 officers and 2,090 men were educated. A Police School is maintained at Bangalore, where the men are drafted for instruction in Codes and in police duties of all kinds. The cost of the Department was Rs. 7,35,000 in 1895.

Some desperate gangs of dacoits, from districts beyond the northern frontier, who had been for years committing serious depredations in this Province, were broken up in 1884 and the majority of their members brought to justice. The entrance of similar gangs into Mysore has to a great extent been barred by establishing Police outposts for

the protection of ghats and passes, and for watching the movements of foreign and local predatory gangs. Registers are kept up of all suspicious characters, known depredators and receivers of stolen property, and gangs are escorted by the Police when they move from place to place.

The Village Police is under the Patel, who is assisted by the minor village officials. They report crime and help the Regular Police in prevention and detection of crime. The Patel is held responsible for the enforcement of night watches in villages, for the upkeep of boundary hedges and village choultries, and for the general safety of the villagers.

Criminal Justice.—The administration of Justice was presided over by the Chief Judge, a European, exercising the powers of a High Court. In 1884 a Chief Court was formed of three Judges, the Chief Judge being a European (a retired Judge of the Madras High Court), and the two Puisne Judges being Natives. From 1891 the Chief Judge was also a Native, but in 1895 a European was again appointed.

The Chief Court exercised original jurisdiction in criminal cases in Bangalore, Kolar and Tumkur Districts from May 1884, when the Court of the Sessions Judge of the Nundydroog Division was abolished, until September 1890, when the latter Court was re-established, holding periodical sessions in the three Districts. In 1887 the system of trial by jury was introduced in Sessions cases. In 1888 the holding of periodical sessions at Hassan was revived. For Appellate jurisdiction in Criminal cases, no separate Benches were formed; the Benches that sat for Civil Appellate work also disposing of Criminal appeals. As a rule appeals against the decisions of the Chief Court on the original side are disposed of by a Full Bench, and other appeals by a Divisional Bench of two Judges. The Chief Court also acts as a Court of Reference and a Court of Revision.

In 1890 there were 131 Courts subordinate to the Chief Court, presided over by the following classes of magistrates :—

Magistrates of the 3rd class	76
,, ,, 2nd ,, ...	24
,, ,, 1st ,, ...	20
District Magistrates	8
Courts of Sessions	3

In 1892 a European Magistrate's Court was established at the Kolar Gold-mines, and in 1895 a temporary Sub-Judge's Court at Shimoga. The receipts of the Criminal Courts in that year were Rs. 76,257, and the charges Rs. 2,32,948.

The subjoined statement exhibits the nature of the punishments awarded by the various tribunals for five years :—

Year.	Numbers punished	Sentenced to									
		Death.	Transportation.	Imprisonment.		Fine.		Whipping.		Ordered to give security.	Imprisonment in default.
				Rigorous	Simple.	Rs. 50 and under.	Above Rs. 50	10 stripes and under.	Above 10 stripes.		
1886	7,770	5	5	1,282	183	6,121	62	54	58	39	22
1887	8,886	13	4	1,150	169	7,393	52	43	62	23	13
1888	8,768	2	10	1,112	222	7,256	60	41	65	27	15
1889	8,784	9	9	1,287	172	7,057	125	51	74	46	17
1890	7,615	4	5	1,250	206	5,963	69	40	78	56	11

Prisons.—The Chief Judge is *ex-officio* Inspector-General of Prisons. The temporary jail at Kukarhalli was given up in June 1881, and on the revision of Districts and Taluqs in 1882-3 only three Jails, the Central Jail at Bangalore and the District Jails at Mysore and Shimoga, were kept up, with the Lock-ups at Taluq and Sub-Taluq headquarters. Rules were at the same time framed specifying the Jails to which persons sentenced by the different Courts should be sent for incarceration. In 1882 it was decided not to transport any more life-convicts from Mysore to the Andaman Islands, owing to the cost involved in maintaining them there. The Mysore convicts already there were brought back (except a few dangerous characters whom it was thought well to leave) and Rs. 103,252 paid for their past upkeep. They have since then been confined in the Central Jail, Bangalore, and this course is now pursued with all life-convicts. In 1887 the Lock-up at Bangalore and in 1890 the Lock-ups at Mysore and Shimoga were absorbed in the respective Jails at those places. There thus remained three Jails and 78 Lock-ups. In 1889 the ticket-of-leave system was introduced among life-convicts, on the basis of the rules in force in the Punjab. Some changes in improving the scales of diet were also made about this time.

The number of convicts in Jail, which was 1,689 in 1881, was 819 in 1890. Of the latter, 254 were under sentence for less than one year, 108 for above one and less than two years, 114 for above two and below five years, 128 for above five and below ten years, 9 for above ten years. There were also under sentence of transportation, 200 for life and 6 for a term. The total included 762 male and 57 female prisoners. There were 7 under sixteen years of age, 619 between sixteen and forty, 169 between forty and sixty, and 24 above sixty.

The convicts are employed in cleaning and grinding ragi, on prison duties, such as, prison warders, servants and gardeners, on the preparation of articles for use or consumption in the jails, on jail buildings, manufactures and public works. The chief industries are printing,

carpet, tent and blanket making, cloth-weaving, gunny and coir work, carpenters' and blacksmiths' work in the Central Jail at Bangalore; carpenters' and smiths' work in the Shimoga Jail, and weaving and spinning, basket and mat making, and pottery in the Mysore Jail.

There is a paid teacher in the Bangalore Central Jail to give instruction to convicts. A large number are taught Kannada: a few Hindustani and English.

The cost of the jails fell from Rs. 158,507 in 1881 to Rs. 88,517 in 1890. The net cost per head of average strength in the latter year, after deducting the value of jail industries, was Rs. 94.3.6.

Civil Justice.—There are four classes of Civil Courts, namely:—Courts of Munsiffs, of Subordinate Judges, District Courts, and the Chief Court. Munsiffs exercise original jurisdiction in cases up to Rs. 1,000 in value, and Small Cause powers up to Rs. 50; Subordinate Judges have jurisdiction in cases from above Rs. 1,000 to Rs. 5,000, and Small Cause powers from above Rs. 50 to Rs. 100, and hear appeals from decisions of Munsiffs if referred by the District Judge; District Courts have unlimited jurisdiction, hear appeals from decisions of Munsiffs, and from those of Subordinate Judges within the limit of Rs. 3,000. The Chief Court, by one of its Judges sitting for the purpose, acted for some time as the District Court for Bangalore, Kolar and Tumkur; sitting as a Full Bench it hears appeals from the decrees of a single Judge as above, and sitting as a Bench of not less than two Judges disposes of all other appeals brought before it. In 1890 its original civil jurisdiction over the three Districts named was withdrawn and transferred to the new District and Sessions Court established at Bangalore. An Additional Munsiff's Court was also formed to relieve such of the Munsiffs as had heavy files. In July 1893, the Special Magistrate of the Kolar Gold-fields was appointed as Munsiff also, with jurisdiction up to Rs. 100 in ordinary suits and Rs. 50 in small causes. In August 1894, a Subordinate Judge's Court was temporarily opened at Shimoga for relief of judicial work, and closed in June 1895.

There were thus in 1895 three District Courts, at Bangalore, Mysore and Shimoga; two Courts of Subordinate Judges, at Bangalore and Mysore, which also take up all the Small Cause cases there; nineteen Munsiffs' Courts in various parts, including the Additional Munsiff: altogether twenty-four, besides the Chief Court. The number of suits instituted gradually increased from 15,788 in 1886 to 19,861 in 1895, nearly one-half of them belonging to the class of Small Causes. The receipts in all the Courts in the latter year were Rs. 345,008, and the charges Rs. 341,103.

Registration.—Till 1886 the Inspector-General of Registration was an officer who was at the same time Comptroller, and also Superintendent of the Government Press. The office was subsequently held by the Legislative Secretary.

The Deputy Commissioners were *ex-officio* District Registrars, and the Taluq Amildars were Sub-Registrars. Wherever the work has increased to a certain amount, special Sub-Registrars have been appointed. In 1892 Deputy Commissioners were relieved of Registration work, the Treasury Assistant Commissioners being appointed to do it. Likewise the Sheristadars relieved the Amildars in taluqs. In 1895 Deputy Commissioners were again made District Registrars. In that year the Department consisted, besides them, of fifteen special Sub-Registrars and sixty-four Sheristadars as *ex-officio* Sub-Registrars. The number of documents registered was 42,974, affecting property valued at Rs. 11,360,893. Of these, 26,626 were documents whose registration was compulsory, and 14,882 those whose registration was optional. The receipts of the department were Rs. 95,652 and the expenditure was Rs. 50,003.

Municipal Administration.—Excluding that of the Civil and Military Station of Bangalore, which remained under British Administration, there were 83 Municipalities in 1881. By 1895 the number had risen to 112. They are established in all District and Taluq head-quarter towns and in other large places that are suitable. But those of Bangalore and Mysore cities are the only ones of important magnitude. The Municipal Boards are composed of official and non-official members nominated by Government, with the Deputy Commissioner or Taluq Amildar as President. The *ex-officio* members do not as a rule exceed one-third of the total number. In 1892 the privilege of election was granted to Bangalore and Mysore, with specific rules for the qualifications of candidates and of voters, and the former has now a separate paid President. In Bangalore there are 22 Municipal Commissioners, 11 elected, 5 *ex officio*, and 6 nominated by Government; in Mysore the total is 20, composed of 10, 5 and 5 respectively. The income of the former amounted to 1½ lakhs in 1893–4, and of the latter to 1⅓ lakhs. These funds are derived from octroi, taxes on buildings, mohatarfa, license fees, &c.; and are expended on conservancy, lighting, roads, drains, water supply, charitable institutions, &c. The income of the remaining 110 Municipalities came to Rs. 2,79,652 in 1893–4, and in many suffices for little more than sanitary operations to keep the places clean, but various local improvements are carried out wherever funds are available. Out of the total municipal income in 1894–5 of Rs. 5,63,000, the amount spent was Rs. 4,89,000,

distributed as follows:—23·22 per cent. on conservancy and sanitation, 6·22 on lighting, 37·65 on public works, 6·80 on education, and 7·29 on medical aid.

Military.—The Military Department is under the Military Secretary, who also has charge of the Amrit Mahal. *Cavalry.*—In August 1883, a Cavalry Officer of the British service was appointed as Staff Officer, for the purpose of drilling the Silahdars and bringing them up to a higher standard of efficiency. In 1885 the three regiments of Silahdars, stationed at Bangalore, Mysore and Shimoga, with detachments at other District headquarters, were reduced to two, with a total strength of 1,171, and stationed at Bangalore and Mysore, for greater convenience of management, furnishing detachments where required as before. In 1892 the two regiments were broken up and two fresh corps formed, as finally sanctioned in July 1893, one, called the Imperial Service Lancers, with headquarters at Bangalore, for imperial service, and the other, with headquarters at Mysore, for local service. The former consists of picked men, better paid, mounted and equipped, and on the same footing as Native Cavalry of the British service. They are commanded by a member of the Mysore Royal family, are brigaded with the British troops at reviews, and are periodically inspected by the British Staff Officer appointed for that purpose, and by the Inspector-General of Imperial Service Cavalry with the Government of India. A Transport Service, to be made up to 300 ponies, and suitable camp equipment are maintained in connection with it in readiness for service. The actual strength of the two regiments in 1895 was: Imperial Service Regiment, 645; Local Service Regiment, 549; or 1,194 altogether. *Infantry.*—The three battalions of Barr Sepoys were somewhat reduced in 1888 by allowing only eight companies to each instead of ten. Their actual strength in 1895 was 1,890. The headquarters were at Bangalore, Mysore and Shimoga respectively, and detachments were furnished to other Districts for Treasury guards and similar duties.

The uniforms and armament of both Cavalry and Infantry have undergone several changes and improvements, and are now generally assimilated to those of the Native troops in the British service. The military expenditure in 1894–5 amounted to Rs. 9,19,264, of which Rs. 46,557 was for headquarters establishment, Rs. 5,51,707 for cavalry, Rs. 3,14,097 for infantry, and Rs. 6,902 for military stores. The cost of the Imperial Service Regiment, included in the above, was Rs. 3,23,010.

PRODUCTION AND DISTRIBUTION

Agriculture.—A Director of Agriculture and Statistics was appointed in 1886, the office being held along with those of Inspector-General of Police and of Forests and Plantations. The duties were the collection of statistics of rainfall, cultivation, cattle, trade and manufacture, with promotion of experiments in agriculture and in the breeding of live stock. These subjects have been already treated of. Agricultural Inspectors, trained in the Agricultural College at Saidapet, were appointed to each District. An Agricultural and Industrial Exhibition was held at Mysore in October 1888, at the close of the Dasara, and was well attended. The number of exhibits exceeded 30,000, and a large number of medals and prizes were distributed.

Weather and Crops.—Meteorological observatories, fully equipped, were established, in 1892-3, at Bangalore, under the Principal of the Central College, and at Mysore, Hassan and Chitaldroog under the Science Assistant of the College or High School. The observations recorded, of temperature, wind, clouds and rain, are daily telegraphed to the Meteorological Reporter with the Government of India. Rain gauges of a uniform pattern are maintained at 151 stations, and the registered rainfall is reported to headquarters. The results are made use of in Vol. II. under each District. Crops have already been fully dealt with.

Forests.—An Inspector-General of Forests and Plantations, who also held other offices, as above stated, was appointed in 1885. In 1895 the department was placed under a separate Conservator of Forests; nearly all the Assistants are Natives, several of whom have passed through a course of training in the Forest School at Dehra Dun.

The area of State Forests, or those which are reserved, was 643 square miles in 1881, and 1,654 square miles in 1895. The unreserved or District forests are under the management of the Revenue authorities, and it has been found necessary, while providing for local needs, to place restrictions on the indiscriminate felling of wood in these tracts, in order to stop the reckless waste that was going on in several parts. Fuel reserves are also formed out of them when suitable. The area of regular plantations stocked was 9 square miles in 1885 and 34 square miles in 1895. This includes both forest plantations and revenue plantations. In the former, a regular system of nurseries, pitting and planting out of valuable kinds of trees, with subsequent pruning and thinning, is pursued. In the latter, managed by the Amildars, the land is merely ploughed, and in the rains seeds

are sown in drills, of indigenous trees that will admit of coppicing afterwards. By 1895 there were 1,520 square miles of forests and plantations brought under fire conservancy measures, and 1,416 square miles were successfully protected from fire in that year. Grazing is permitted to a certain extent on a system of licenses.

The number of reserved kinds of trees was increased from 9 in 1881 to 11, and in 1890 to 12. The following are their names :—

Sandalwood	*Santalum album.*	Wild Jack, Hesswa, Heb-Halasu	*Artocarpus hirsuta.*
Teak	*Tectona grandis.*	Karachi, Kammar, Arsina	*Hardwickia binata.*
Poon	*Calophyllum elatum.*	Bili Matti	*Terminalia arjuna.*
Blackwood	*Dalbergia latifolia.*	Kari Matti	*Terminalia tomentosa*
Honne	*Pterocarpus marsupium.*	Ebony, Bale, Malali	*Diospyros ebenum.*
Lac, Jalari	*Vatica laccifera.*		
Nandi	*Lagerstrœmia microcarpa.*		

Special attention has been given to promoting the natural reproduction as well as the artificial propagation of sandalwood, teak and other profitable trees.

The sales of large-sized timber are made at the regular Timber Depôts, and of the smaller sized at temporary depôts opened in convenient places. The latter practice was introduced in 1883 in place of the license system. But licenses are still granted for cutting bamboos. Sandalwood, which is a State monopoly and contributes the greater proportion of forest revenue, is sold at the various Sandalwood Kotis, and improvements have been made in the preparation of billets and roots, as such prepared wood fetches a higher price. Sleepers and fuel for the railways were supplied from the forests in large quantities for several years. Attention has of late been paid to improving the revenue from minor forest products, such as myrobalans, lac, and *tangadi* bark used for tanning. The elephant keddahs, already described (p. 179) are also attached to the Forest department.

The surplus receipts from Forests have been steadily rising from 4·82 lakhs in 1881–2, to 6·56 lakhs in 1885–6, to 8·49 lakhs in 1889–90, to 9·31 lakhs in 1890–1, and 10·10 lakhs in 1893–4. The total receipts in the latter year were Rs. 14,21,770, of which sandalwood produced Rs. 9,29,340, and the charges were Rs. 4,11,348.

Mines and Quarries.—A Geological Department was formed in 1894–5, under Mr. Bruce Foote, F.G.S., retired from the Geological Survey of India. Its duties involve an investigation of the geology and mineralogy of the country, and the inspection of mines. A number of apprentice geologists are being trained for the work, most of them natives of Mysore. An account has been given above of the gold-mines.

Manufacture and Trade.—Already treated of in detail.

Public Works.—This Department has always been under a Royal Engineer officer as Chief Engineer. The majority of the executive staff consists of Native engineers of Mysore origin, trained in the Engineering Colleges at Madras and Poona. There has been great activity in public works of all classes, especially since 1886, when the transfer of the State railway to foreign capitalists allowed of larger sums being placed at disposal for this purpose. The annual grant, which averaged 15 lakhs before, was raised to 18½ lakhs in 1885-6, rose every following year to 29½ lakhs in 1890-1, and was between 30½ and 32 lakhs in the four years to 1894-5. A special Sanitary Department was also formed in 1892, the grants for which were 1¼ lakhs in the first two years, and nearly 2½ lakhs in 1894-5.

The grant for Public Works made from Provincial Funds is supplemented by grants from District Funds and Local Funds General, Irrigation Cess Fund, and Palace Fund. The following are the proportions for the past five years:—

Fund.	1890-1.	1891-2.	1892-3.	1893-4.	1894-5.
Provincial Fund ...	11,30,000	21,25,000	24,00,000	24,50,000	25,00,000
District Fund ...	5,57,789	5,80,000	5,57,623	4,23,065	4,13,499
Irrigation Fund ...	12,40,940	3,71,000	2,13,000	1,50,000	2,84,000
Palace Fund... ...	17,000	7,000	34,000	28,000	12,000
Total Rs.	29,45,729	30,83,000	32,04,623	30,51,065	32,09,499

The works executed are classed as Original or Repairs, under the heads Military, Civil Buildings, Communications, Miscellaneous Public Improvements, and Tanks and Channels. Some additional works, for which funds are provided from the departments concerned, are also carried out for Forests, Education, Medical, Muzrai and Municipalities. But petty repairs were in 1886 entrusted to the several departments themselves.

The Military works were new Rifle Butts at Hebbal, and improved lines for the Silahdar and Barr forces at the various headquarters. Civil buildings included a variety of cutcherries, courts, offices, schools, dispensaries, police-stations, &c. throughout the country. Some of the more important major works were extensions of the Palace at Bangalore, erection of the Public Offices at Mysore, the Victoria Jubilee Institute, the new Maharaja's College, the Exhibition building in the Lal Bagh, the Laboratory and Observatory at the Central College, the Maternity Hospital at Bangalore, the Law Courts at Mysore, the restoration of the Darya Daulat at Seringapatam, the Courpalais Chatram at Shimoga, the Lansdowne Bazaars at Mysore, &c.

Under Communications, in 1894–5 there were 1,747 miles of main or trunk roads, maintained from Provincial Funds, and 3,344 miles of branch roads maintained from District Funds. The former include the Madras-Cannanore road, 502 miles; Salem-Bellary road, 454 miles; Bangalore-Honnavar road, 559 miles; and Bangalore-Mangalore road, by the Manjarabad Ghat, 196 miles. A number of Ghat roads to the west have been opened out or improved, and many new roads made as feeders to the railways. But among the works of greatest magnitude are the bridges that have been constructed over several rivers, such as over the Tunga at Hariharpur, over the Bhadra at Bale Honnur, over the Yagache at Belur, over the Kaveri at Yedatore, and others.

Among Miscellaneous improvements the most important have been the water-supply of Bangalore and Mysore. The former, the subject of conflicting schemes and discussions for a great number of years, has found solution in the project for water from the Hesarghatta tank on the Arkavati river. The Mysore scheme is in two parts, one of which includes the filling up of Purnaiya's Nala within municipal limits, and the other, the conveyance of water from the Kaveri to Mysore by pumping up with water power and the aid of turbines. Works of this nature carried out by the separate Sanitary Department were, diversion of the drainage and sewage of the Mysore fort, the drainage of Shimoga, water-supply of Chikmagalur, Closepet, Nanjangud, Yedatore, Hunsur, and other towns, together with the drainage and extension of overcrowded localities.

The annual grant for Irrigation Tanks and Channels was from 3 to 3·63 lakhs from 1881 to 1884, 4·64 lakhs in 1885–6, 6·11 in 1886–7, 7·29 in 1887–8, 9·73 in 1888–9, 10½ lakhs in the next two years, 16·3 in 1891–2 (15 months), 12·63, 14½ and 13½ lakhs in the three years to 1894–5. The serial restoration of tanks had advanced sufficiently by the time of the Rendition to allow of an abatement of the expenditure on it in favour of railway extension. In 1886 it was resolved to make over the minor tanks, or those yielding a revenue not exceeding Rs. 300, to the Revenue authorities, the ryots doing the earthwork themselves and Government paying for masonry works where necessary. The scheme was at first introduced tentatively into one taluq in each District, and after trial was extended to all parts. A Tank Inspector was appointed to each taluq to assist the Amildar in the work, and a trained Sub-Overseer to each District to instruct and supervise the Tank Inspectors. A large amount of useful work has been carried out under this system. In 1887–8 the management of the river channels in the irrigation season was transferred to the Amildars of the taluqs through which they run. This, it was considered, would allow of more speedy

attention to complaints of unequal distribution of water. In the following year it was further arranged that the hot weather supply of water to sugar-cane and garden tracts dependent on channels should be given at fixed periods, in consultation with the Deputy Commissioners concerned.

The sums spent on Original irrigation works were, on Tanks, 4·30 lakhs in the five years from 1881, 25·78 lakhs in the next five, and 28·20 lakhs in the four years to 1895: on Channels, 2·18, 10·56, and 10·33 lakhs in the same periods. For Repairs were spent 9·06, 5·41, and 3·43 lakhs on Tanks, and 2·66, 2·35, and 2·81 lakhs on Channels, in the same periods. It is impossible in this place to give any full list of the numerous works, though of the highest utility, that have been carried out under these heads. It may suffice to state that the river channels in Mysore and Hassan Districts had, in 1895, attained to a length of 869 miles, and to mention the following as among a few of the more considerable works carried out:—Improving and extending Rampur channel, Nanjangud taluq; constructing Borankanve reservoir, Chiknayakanhalli taluq; restoring the Rekalgere tank, Chellakere taluq; restoring Sulekere tank, Malavalli taluq; improving Hesarghatta tank, Nelamangala taluq; constructing Srinivasa Sagara tank across the North Pennar, Chik Ballapur taluq; constructing Ramasamudram tank across the Chitravati, Sidlaghatta taluq; improving and extending Hulhalli channel, Nanjangud taluq; improving and extending north channel from the Sriramdevar dam, Chanraypatna taluq.

Railways.—At the time of the Rendition, in March 1881, in addition to the Bangalore branch of the Madras Railway from Jalarpet to Bangalore, 55 miles within Mysore limits, on the broad gauge,[1] there was the Mysore State Railway, from Bangalore to Mysore, completed as far as Mandya, 58 miles on the metre gauge. The latter was opened to Mysore in February 1882, and was constructed almost entirely out of current revenues. In October 1882, the line from Bangalore to Tumkur, 43 miles of metre gauge, was commenced, a loan of 20 lakhs at 5 per cent. interest having been raised for the purpose, and was opened for traffic in August 1884. A further portion to Gubbi, 11 miles, was opened in December 1884. Surveys and estimates for extending the line to the frontier at Harihar were prepared, and it was decided to hand over the construction to the Southern Mahratta Railway Company, to whom the open line of 140 lines was hypothecated for the amount of its cost, to be worked by them on terms similar to those in force with regard to the Deccan railways. The transfer was effected on the 1st of July 1886.

[1] The connecting link of two miles between Bangalore Cantonment and City was really opened in July 1882.

The contract thus concluded by the Secretary of State, acting on behalf of Mysore, was to be in force for 46 years. The Company, under his guarantee of interest at 4 per cent., payable by Mysore, raised a loan of £1,200,000, which, at a premium of 2 per cent., realized £1,224,000. Out of Rs. 16,382,801, the equivalent in Indian currency, the sum of Rs. 6,860,508 was paid to Mysore for the actual outlay on the Mysore-Gubbi line, and the balance, or such portion as was necessary, not to exceed 80 lakhs, was to be devoted to the extension of the line to Harihar, 156 miles. The whole line from Mysore to Harihar, 296 miles, was to be worked by the Company as a separate system, distinct from their railways in British India, the cost of management being apportioned according to their respective gross earnings. Out of the net earnings of the Mysore line the Company were to retain one-fourth, and pay three-fourths to Mysore. In February 1889 the line was opened from Harihar to Birur, 79½ miles, and in August 1889 it was opened throughout, establishing direct communication between Mysore and Poona, and thus with Bombay. In December 1891 an extension of the line from Mysore to Nanjangud, 15¼ miles, was completed from State funds.

In December 1890 a line from Yesvantpur Junction to Hindupur, 51½ miles within Mysore, was undertaken by the State engineers. The first section to Dod Ballapur was opened in December 1892, and the remainder in September 1893, forming through connection with Guntakal on the Madras-Bombay line. The Kolar Gold-Fields Railway, ten miles on the broad gauge, from Bowingpet Junction to the Mysore Mine, was completed by the State in June 1894. These are all the lines at work up to 1895. The further projects surveyed are a line from Arsikere, *viâ* Hassan and the Manjarabad ghat, to Mangalore; lines from Nanjangud to Gudalur, and from Nanjangud to Erode; lines from Birur to Shimoga, from Dod Ballapur to Chik Ballapur, and from Mudgere to Sivasamudram; a line from Mysore through Yedatore and Coorg to Tellicherry or Cannanore. The first and fourth are in course of execution.

The metre gauge lines, additional to that from Mysore to Harihar, are worked for the State by the Southern Mahratta Railway Company, and the Kolar Gold-Fields line by the Madras Railway Company, on triennial agreements, the net earnings, after deducting working expenses, going to Mysore.

The total capital outlay on Railways has been Rs. 20,363,427, including Rs. 1,707,793 unexpended in the hands of the British Government from the proceeds of the English loan. This outlay has been met from the English and Local railway loans mentioned above,

and from Rs. 1,980,626 provided by the State from current revenues. There is a deficit on the working of the Mysore-Harihar line of about $3\frac{1}{2}$ lakhs a year. But of the remaining railways, the Mysore-Nanjangud and Bangalore-Hindupur lines earned 2·3 and 2·5 per cent. respectively, and the Kolar Gold-Fields line as much as 8·1 per cent. on the capital outlay.

Post Office.—The Anche, as the Local Post was called, was an old institution, dating from the time of Chikka Dera Rája in the seventeenth century. It continued to meet the wants of the public, and many improvements in working were introduced from time to time by the Anche Bakshi, the head of the department. The number of rural post-offices was greatly increased after 1882 by entrusting them to the Hóbli schoolmasters, who received for the work a small allowance in addition to their pay. But the system of levying all postage in cash, granting receipts for the same, and keeping detailed registers of letters received and delivered, though safe, was behind the times. Difficulties, however, arose in regard to the proposal to introduce postage stamps. Eventually, after much discussion, the Anche was amalgamated with the British Postal Service in April 1889, and the management transferred to that department. The terms of the transfer were, that the whole of the postal expenditure should be borne by the British Government, and that the whole of the official correspondence of the State should be carried within the limits of Mysore free of any cost to the Durbar. The result has been a saving of Rs. 60,000 a year to Mysore, with additional postal facilities.

REVENUE AND FINANCE

The designation of the Deputy Accountant-General, who had been in charge for twenty years, was altered in 1882 to that of Comptroller, and he was also placed in charge of Registration and of the Government Press. Since 1886 the office of Comptroller has been separately held by Native officers.

Provincial Funds.—The revenue under all heads, excluding railways, rose from $106\frac{3}{4}$ lakhs in 1881–2, with a fall in 1884–5 to $100\frac{3}{4}$ lakhs (due to an unfavourable season and the loss of the C. & M. Station of Bangalore), to $174\frac{3}{4}$ lakhs in 1894–5. During the same period, the expenditure, also excluding railways, was $103\frac{1}{3}$ in 1881–2, fell to $99\frac{2}{3}$ lakhs in 1884–5, and then increased every year to 149 lakhs in 1894–5. After allowing for railway charges, there was a net surplus at the latter period of $127\frac{1}{4}$ lakhs.

The following is a detailed statement of the revenue year by year :—

REVENUE FROM 1881–2 TO 1894–5.

Heads of Receipts.	1881–2.	1882–3.	1883–4.	1884–5.	1885–6.	1886–7.	1887–8.	1888–9.	1889–90.	1890–1.	1891–2. (15 months)	1892–3.	1893–4.	1894–5.
Land Revenue	7,020,842	7,021,777	7,334,476	6,683,886	7,641,241	8,709,602	8,513,879	8,396,337	8,921,826	8,712,705	8,064,283	9,452,210	9,440,167	9,557,323
Gold Mines	116,996	8	576	2,255	38,867	51,248	33,433	108,526	196,638	305,566	518,450	495,859	725,629	734.527
Forests	705,619	688,248	627,283	657,564	883,098	998,364	1,008,417	1,135,393	1,368,866	1,446,012	1,685,186	1,370,587	1,465,854	1,381,516
Abkari	1,273,523	1,196,656	1,229,737	1,179,625	1,168,722	1,178,165	1,494,522	1,599,615	1,762,566	2,028,076	2,591,807	3,025,658	3,001,636	3,193,107
Mohatarfa	267,385	264,238	281,442	265,102	294,927	335,104	340,181	329,559	358,115	338,063	312,931	343.398	321,117	264.533
Sayar	442,547	352,938	283,426	340,699	391,139	436,340	412,462	407,568	416,081	388,586	516,495	398,127	348,075	441,852
Salt	12,950	18,090	26,455	24,464	21,623	26,107	20,723	27,391	33,808	22,489	17,278	21,538	25.497	18,234
Stamps	495,831	470,621	465,089	442,791	480,479	515,326	505,550	555,746	592,847	579,936	793,803	705,936	706,031	710,533
Registration	52,727	48,288	46,962	44,339	50,459	56,014	53,823	59,605	64,916	66,529	100,109	97,475	97,279	96,180
Interest	15,523	26,188	36,378	41,564	55,273	131,924	241,205	267,153	314,671	349,945	668,396	328,410	427,194	570,093
Post Office	55,129	58,125	58,616	61,607	65,303	68,008	74,300	76,206	2,132	—	—	—	—	—
Law and Justice, with Jails	70,844	64,054	60,959	69,490	63,970	49,983	70,038	64,698	73,541	71,173	94,478	81,533	82.545	81,451
Police	4,448	4,446	1,229	6,157	3,586	3,879	4,004	4,105	3,857	3,567	3,860	1,676	1,928	1,459
Education	28,491	27,209	23,966	32 348	24,322	23,588	23,911	26,159	33,194	43,632	57,146	53,618	81,019	87,835
Medical	667	393	2,848	3,893	2,348	3,015	12,190	3,522	8,739	6,286	11,668	6,232	11,759	7,050
Minor Departments ...	17,818	51,812	84,168	45,454	158,440	99,387	77,060	63,548	57,810	45,078	53,331	53,414	53,669	10,836
Local Military Force ...	3,259	14	12,567	69	149	5	83	—	633	324	250	1,067	2,302	19,334
Miscellaneous	79,954	46,910	50,036	160,372	72,953	59,255	76,944	74,807	68,851	83,852	97,292	102,983	106,546	268,425
Public Works	17,531	10,046	9,366	9,296	13,804	12,994	13,671	20,150	15,792	16,687	30,794	15,501	23,252	32,848
Total Rs.	10,682,084	10,350,070	10,635,579	10,070,975	11,430,753	12,758,508	12,976,276	13,220,088	14,294,283	14,508,506	15,617,557	16,555,222	16,921,499	17,477,136
Railways	168,907	299,983	311,429	378,126	443,021	113,468	278,250	69,629	179,574	132,749	426,146	408,922	438,595	574,354
Grand total Rs.	10,850,991	10,650,053	10,947,008	10,449,101	11,873,774	12,871,976	13,254,526	13,289,717	14,473,857	14,641,255	16,043,703	16,964,144	17,360,094	18,051,490

N.B.—The first three years include revenue of the Civil and Military Station of Bangalore, as follows:—
1881–2, Rs. 278,839; 1882–3, Rs. 315,615; 1883–4, Rs. 315,856.
From 1 July 1886, only three-fourths of net earnings received from the S. M. Railway are entered.

The increase in Land Revenue is principally due to extended cultivation. In 1891–2 it was made payable in four equal instalments, in February, March, April, and May in the western districts, and in March, April, May, and June in the eastern districts. Under the previous system, by which the collections were from December to March, the revenue having to be paid before the proceeds of the harvest were fully realized, agriculturists were often driven either to sell their crops at a disadvantage, or to raise loans and mortgage their crops. In consequence of the change thus made, it became necessary that the official year should thenceforward commence on the 1st of July instead of the 1st of April.

The increase under Forests from 1885–6 was chiefly due to a revival in the market for sandalwood from previous depression, and to a greater supply of sleepers for the railway. Subsequently the returns fell, owing partly to the war between China and Japan having temporarily crippled one of the principal sandalwood markets, and also to the fact that while, on one hand, the supply of railway sleepers came to a close with the completion of the lines, on the other hand, the Southern Mahratta Railway substituted Singareni coal for wood-fuel for their engines.

The great increase under Abkari or Excise is due mainly to an improved system of control, but also to a larger consumption arising from higher wages and the influx at the gold-fields, and for work on railways, public works, and coffee plantations, of classes habituated to drinking. A separate Excise Commissioner was appointed in 1889.

The following extracts, compiled from the Dewan's addresses in 1892 to 1894, explain the policy in regard to this subject :—

Our revenue from Excise is derived from two principal sources, toddy and arrack. Toddy, the milder and comparatively innocent drink, is the immemorial beverage of the agricultural classes, while arrack, which is far stronger and more harmful, is chiefly consumed by the industrial labourer. The average alcoholic strength of toddy is 2½ per cent., while that of arrack is 39½ per cent. The former is used by the prudent conservative agriculturist with a settled course of life and regular work, while the latter is consumed mostly by the labourer and the artisan attracted to new places by the prospect of profitable employment. There is every reason to believe that the consumption of toddy is fairly stationary, while that of arrack has a decided tendency to increase year after year.

The old system in regard to Toddy was one of eight large District Farms for the entire Province. These farms were given out for terms of three years for an annual rent, the amount of which was the highest tendered by a limited number of persons whose standing in the business practically excluded all outside competition. Under this system, owing to the existence

of a series of middlemen between the Government and the contractor, the State did not derive its proper share of the revenue. And owing to the want of sufficient control, the date groves were themselves deteriorating to such an extent as in some places to imperil the toddy revenue of the future, while in many instances the quality of toddy supplied to the public was so bad as to drive many persons accustomed to this comparatively innocent drink to resort to the more harmful arrack. In order to remedy these defects, the Government issued orders for dividing each taluq into a number of convenient farms. Attempts to introduce a similar system had failed on previous occasions, and it is therefore particularly gratifying that we have now succeeded in placing it on a satisfactory and workable basis. In the place of the eight District Farms which before existed, we have now 1,236 farms distributed over the whole Province. The increase of revenue is due not to any increase in the number of shops for the sale of toddy—for their number remains the same as before—but entirely to the abolition of needless intermediaries between the Government which owns the date groves and the small farmer who supplies a certain number of shops from a particular grove or part of a grove. This arrangement, in addition to the increased revenue it secures to the State, is expected to lead to several indirect benefits, such as the better preservation of our date groves,[1] and the improvement of the condition of the Idigar or toddy-drawing class, who have suffered much under the contract system hitherto in force.

As regards Arrack, our policy has been essentially one of gradual enhancement of the duty upon the article. In 1881 there existed differential rates of duty. The general rate was Rs. 2.3 and Rs. 2.4 throughout the Province, with Rs. 2.7 for the outlying district of Chitaldroog and special rates of Rs. 3.3 and Rs. 3.4 for the cities of Bangalore and Mysore. By a process of gradual assimilation and enhancement we have now arrived at the high uniform rate of Rs. 4 per gallon 20° under proof, equivalent to one of Rs. 5 for proof. The selling price under our system is fixed as high as Rs. 5.5 for 20° under proof, equivalent to Rs. 6.10.3 for proof. These rates are as high as they can be pitched consistently with the sound policy of preventing illicit distillation or contraband importation. The causes which, in addition to the enhanced duty, have tended to secure the increased arrack revenue, are—the abolition in 1884 of all outlying distilleries and the introduction of a system of manufacture and distribution under centralized control;[2] the separation in 1892 of the business of manufacture from that of distribution; and the system adopted in the same year for the sale of the privilege of retail vend. The increase due to the last-named cause represents an

[1] Efforts are being made by planting to form date groves in those Districts where the number is small, and also to replenish the groves where they are in danger of being overworked.

[2] Only two distilleries were retained, one near Bangalore, which supplied all the Districts, including the C. & M. Station of Bangalore, except Shimoga and Kadur, which were supplied by a distillery at Shimoga. From 1st April 1888 the distillery at Shimoga was abolished and the Central Distillery at Bangalore supplied the whole State.

addition of Rs. 0.8.8 to the Rs. 4 duty. By separating the manufacture from the sale of arrack, we were able to attract to the business of manufacture the capital, resources and technical knowledge of a large Madras firm (Messrs. Parry & Co.), and thereby to reduce the price of the manufactured article to 10½ annas per gallon. This very moderate price has enabled us (while retaining the old rate of retail price, namely, Rs. 5.5 per gallon) to enhance the rate of duty correspondingly, from Rs. 3.5 to Rs. 4. The right to vend the liquor has been sold throughout the Province; in the case of the Bangalore and Mysore cities and the Kolar Gold-fields, individual shops have been sold under what is called "the separate shop system"; elsewhere the right to vend has been sold by circles of villages, and in a few special cases by entire taluqs, under the "vend rent system." The work of vending is thus placed in the hands of a large number of persons possessing local knowledge and influence, whose watchfulness in their own interest will be a most useful check upon illicit distillation in their respective tracts. The increase of duty, which involved no increase of price to the consumer, and the sale of the right of vend, had the effect of securing to Government money which hitherto formed the profits of middlemen. Satisfactory arrangements have been made through a Government agent for the carriage of liquor to the various localities outside the Bangalore District.

The number of toddy shops was 2,892 in 1890–1 and 3,052 in 1894–5. The consumption of date toddy in the latter year was 15,884,269 gallons. The arrack shops numbered 943 in 1890–1, 894 in 1891–2, and 925 in 1894–5. The consumption of arrack was 424,511 gallons in 1891–2, and 527,683 in 1894–5. These figures all include the Civil and Military Station of Bangalore.

The other items of Excise revenue are receipts for licenses to sell country beer, foreign liquors, and local double-distilled liquors, ganja and opium. Beer in 1895 was sold at four taverns in Bangalore, supplied from a brewery on the Nilgiris. The tavern formerly existing at the Kolar Gold-fields seems not to be kept up. Ganja and opium are entirely supplied by importation, the cultivation being prohibited. There were in 1894–5, for the sale of ganja, 64 wholesale and 145 retail shops; and the consumption was 58,935 seers of ganja and 1,033 of majum. For the sale of opium there were 87 shops, and the consumption was 3,429 seers.

Sáyar, or land customs, also managed by the Excise department, are now levied only on supári or areca-nut, the bulk of which produce is from Kadur and Shimoga Districts. The duties on tobacco, cardamoms, cocoanuts and betel-leaves were resigned to Municipalities, who collected them, but only within municipal limits, as octroi, and paid half the proceeds to Government. In 1893–4 the whole was relinquished in their favour.

Mohatarfa, or assessed taxes, were in a similar manner made over to the Municipalities, who paid half the proceeds to Government. In 1892–3 the claim to a moiety was relinquished in the case of those Municipalities which agreed to bear the cost of Police. But next year Police charges were debited to State funds, and all the Municipalities were allowed to retain the whole of the Mohatarfa.

Interest represents, besides that accruing on investments, what is earned by current deposits in the Bangalore Branch of the Madras Bank, with which an agreement was entered into in 1887 to receive the surplus available cash balances, and pay 2 per cent. interest thereon. In 1894 the agreement was modified by the adoption of a variable scale of interest, rising, with the Bank's published minimum rate for loans against Government paper, up to 6 per cent.

The annual statement of expenditure is given on the following page.

The entries under the first head include the Famine loan of 80 lakhs due to the Government of India. Annual payments of 4 lakhs were made from current revenue towards interest and reduction of principal down to 1888–9, when the loan was discharged in full by applying for this purpose the refund of Rs. 6,860,508 on account of the capital outlay on the Mysore-Harihar Railway. The annual payments of 4 lakhs have since then been put into a fund for the redemption of the Railway loan.

The Palace charges consist of H.H. the Maharája's Civil list, fixed by the Instrument of Transfer, paid in full from 1886–7, and with an increase of 1 lakh from the 1st June 1891. Some of the charges previously met from it were also transferred to the Muzrai and Military Departments.

Of Assignments under Treaties, the first is the Subsidy to the British Government, which remained at 24½ lakhs per annum, as before, the addition of 10½ provided by the Instrument of Transfer being postponed, first for 5 years, and then for 10 years more, till the 31st March 1896. On the other hand, the British Government from 1884–5 retained the net revenue of the Civil and Military Station of Bangalore. Under Allowances, on account of the higher cost of living, the pensions of Pallegars were increased 50 per cent. in 1893–4, the charge on this account being thus raised from Rs. 37,724 to Rs. 56,586.[1]

The State Accounts, in addition to the usual local audits, have been examined at various times by special Auditors deputed from the Government of India; in 1872 by Mr. Taylor, in 1878 by Mr. Westland, and in 1896 by Mr. Biddulph.

[1] The pensions had been increased 50 per cent. by Sir Mark Cubbon in 1860, and again 25 per cent. by Mr. Bowring in 1864–5.

EXPENDITURE FROM 1881-2 TO 1894-5.

Heads of Expenditure	1881-2.	1882-3.	1883-4.	1884-5.	1885-6.	1886-7.	1887-8.	1888-9.	1889-90.	1890-1.	1891-2. (15 months)	1892-3.	1893-4.	1894-5.
Debt and Interest ..	452,471	449,953	522,516	554,879	535,769	543,615	548,279	550,905	569,410	559,436	598,292	582,753	608,744	621,611
Refunds	43,609	21,354	15,408	22,356	41,614	66,543	47,284	46,029	66,014	333,988	52,139	99,445	64,412	64,860
Land Revenue Charges .	1,401,966	1,362,686	1,308,586	1,391,084	1,312,970	1,223,853	1,234,381	1,178,842	1,331,061	1,321,006	1,551,696	1,314,487	1,588,839	1,534,620
Forests	223,071	199,193	248,257	248,028	226,075	320,687	3[illegible]7,529	456,778	514,821	628,914	721,255	457,634	486,076	465,355
Abkari	31,605	17,038	16,097	18,300	15,576	16,123	28,591	26,865	55,213	60,273	117,632	186,535	215,976	172,354
Sayar	15,260	15,165	15,274	14,505	13,632	12,839	13,837	14,090	13,729	14,427	16,165	12,933	12,989	13,174
Stamps	14,083	13,309	14,311	18,103	15,524	23,455	17,867	21,545	21,197	19,948	26,759	24,405	26,997	32,723
Registration	23,528	25,369	25,579	25,972	26,672	25,532	25,842	28,957	29,563	32,201	48,068	46,571	47,549	49,615
Post Office	159,661	143,163	127,535	126,660	120,755	129,422	135,676	136,920	16,664	3,437	122	—	—	—
Administration	435,151	269,371	254,583	267,204	274,235	305,417	270,641	278,575	308,113	359,656	490,420	432,760	543,011	753,854
Palace Charges	1,038,985	1,000,000	1,000,000	1,000,000	1,000,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,733,333	1,400,000	1,400,000	1,400,000
Law & Justice, with Jails	535,582	618,720	412,279	451,790	423,272	745,283	744,379	749,895	755,369	773,613	1,000,999	832,168	858,166	875,552
Police	444,549	443,145	452,185	467,018	504,555	536,992	580,401	590,034	622,801	677,871	882,282	743,840	742,346	761,924
Education	135,628	143,481	138,065	145,130	150,429	175,610	178,172	180,920	261,770	302,729	433,437	398,197	431,014	481,170
Muzrai	269,763	275,995	279,657	280,955	296,819	283,601	273,932	281,964	278,663	232,559	380,971	315,351	310,388	338,616
Medical	145,407	138,080	129,659	132,994	147,945	145,954	164,221	189,685	175,409	196,590	256,341	237,840	249,322	255,296
Minor Departments .	89,659	248,045	235,318	130,253	120,934	97,485	75,724	83,365	104,141	117,543	221,680	134,418	124,368	208,360
Furlough Allowances to Officers	22,921	34,601	37,224	14,202	5,725	1,064	8,403	10,005	1,078	5,591	7,757		—	—
Allowances and Assignments under Treaties and Engagements ...	2,508,933	2,538,733	2,593,925	2,554,048	2,55[illegible],630	2,551,901	2,554,020	2,551,622	2,550,640	2,550,12[illegible]	2,602,218	2,556,070	2,571,196	2,560,510
Pensions	265,456	232,418	245,600	270,964	256,561	244,110	251,789	240,937	267,873	290,191	357,370	268,715	254,234	278,276
Miscellaneous	245,540	4[illegible]8,097	388,355	151,177	199,024	148,295	247,8[illegible]2	156,040	126,321	142,271	334,987	395,506	396,223	524,800
Local Military Force ...	759,855	757,321	738,009	756,939	73[illegible],100	737,234	717,875	728,658	736,266	755,837	1,096,317	989,027	931,504	977,652
Public Works	1,070,702	919,183	936,001	8[illegible]3,687	1,132,299	1,271,132	1,579,900	1,982,076	2,191,404	1,990,629	2,737,289	2,442,511	2,498,628	2,937,474
Total Rs.	10,333,516	10,275,110	10,139,513	9,966,248	10,120,110	10,909,153	11,396,591	11,740,723	12,297,517	12,712,819	15,637,558	13,871,166	14,362,282	15,311,866
Railways	1,599,639	137,237	946,089	586,848	643,881	115,486	381,566	365,039	700,750	663,804	1,950,295	2,660,045	1,324,586	479,723
Grand Total Rs.	11,933,155	11,612,347	11,085,602	10,553,096	10,763,991	11,024,639	11,780,157	12,105,762	12,998,267	13,376,623	17,587,851	16,531,211	15,686,868	15,791,589

N.B.—The first five years include charges on account of the Civil and Military Station of Bangalore, as follows:—

1881-2, Rs. 126,710; 1882-3, Rs. 149,558; 1883-4, Rs. 167,791; 1884-5, Rs. 10,647; 1885-6, Rs. 3,143.

Local Funds.—The Local Funds consist of a cess of one anna in the rupee on the land assessment and on the collections from Excise, Sáyar, and some other items, and of an Irrigation cess at the same rate levied separately in some taluqs and included in the net land assessment in others. Out of the total raised on the land assessment, 76 per cent. is credited as District Funds, to the District in which it is collected, and administered by the Local Fund Boards. The same proportion of collections under other heads is credited to Local Funds General, held at disposal of the Government for expenditure on local projects. The remaining 24 per cent. under both the above is credited to Education as the Village School Fund. The Irrigation Cess Fund is administered by the Public Works Department and the Revenue Officers.

The Local Fund Boards are one for each of the eight Districts and one for the French Rocks Sub-Division. The Boards are under the Deputy Commissioner or Sub-Division Officer, and are each composed of certain *ex-officio* members, including all the Amildars of the District, and of seven non-official members, namely, six landed proprietors and one inamdar, who is elected by the other inamdars of the circle. It is proposed to raise the number of non-official members to 12. Grants from Local Funds General are made to the District Funds for the execution of works which are beyond their means.

The following is a statement of income and expenditure of District Funds for two periods of five years :—

Receipts.	1881–2 to 1885–6.	1886–7 to 1890–1.	Expenditure.	1881–2 to 1885–6.	1886–7 to 1890–1.
Opening balance...	69,425	402,604	Public Works—		
76 per cent. of Local Cess	1,922,761	2,345,678	Original ...	420,525	899,607
Cattle Pounds ...	130,296	160,320	Repairs ...	1,041,096	1,190,790
Ferries	—	47,391	Establishment and tools ...	407,483	481,325
Grants from Local Funds General...	144,000	341,712	Dispensaries ...	40,745	100,130
Grants from Public Works	68,961	11,500	Travellers' Bungalows and Musafirkhanas ...	30,956	38,190
Miscellaneous ...	40,929	4,603	Miscellaneous ...	32,963	39,786
Loan recovered from Municipalities	—	14,649			
Total Rs.	2,376,372	3,328,457	Total Rs.	1,973,768	2,749,828

In 1893–4 the Local Funds realized Rs. 11,56,047; namely, Rs. 8,35,349 from the one anna cess on land revenue, excise and sáyar, Rs. 2,37,960 from the irrigation cess, and Rs. 82,738 from cattle pounds, ferries, &c. The income of the District Fund Boards was

Rs. 5,82,082, and the expenditure Rs. 5,67,194. Of this, 76 per cent. was spent on roads and bridges, 8 per cent. on medical aid, 4 per cent. on new wells for drinking-water, and 3 per cent. on village sanitation. Their income in 1894–5 was Rs. 6,24,175, and expenditure Rs. 5,91,247; namely, 79·4 per cent. on communications and buildings, 8·8 per cent. on medical aid, 3·25 on wells for drinking-water, and 2·55 on village sanitation. Besides this a sum of Rs. 1,06,000 from Local Funds General was spent, chiefly through the Boards, on roads, drinking-water wells, musafirkhanas, village chavadis, bathing ghats, &c.

Agricultural Banks.—In 1894 a scheme for the establishment of Agricultural Banks was introduced, in order to relieve the ryots from the necessity of borrowing at the ruinous rates of interest on which alone they could obtain any credit. The essential principle was that the Bank should be an association of agriculturists themselves, and strictly co-operative, thus doing away with the profits of middlemen.

The association was to consist of land-holders enlisted on the basis of mutual confidence arising from mutual information of each others' character and resources. The object to be the common benefit of cheap credit and not the earning of divisible profits. There was to be no share capital, funds being obtained by means of loans raised or deposits received. The members to contribute their liability only, which they could limit by prescribing a maximum for each individual loan or for the sum total of loans; or they could resign at any time and escape further liability. The Bank funds to be lent only to its members, at such moderate rates of interest which would leave a small margin for expenses and the formation of a Reserve Fund. The management to be in the hands of a body elected from among the members themselves and serving gratuitously. No loan to be made except for an approved purpose, such as an agricultural operation which, with ordinary care, might be expected to yield enough to repay the loan and to leave some profit for the borrower.

Under this scheme two Agricultural Banks were established in Seringapatam taluq in 1894, and ten applications from other parts had been received in 1895.

Savings Banks.—The deposits in Savings Banks rose from 4 lakhs in 1881 to upwards of 28 lakhs in 1894. The rate of interest, which had been $3\frac{3}{4}$ per cent., was then fixed at $3\frac{1}{2}$ per cent. The number of depositors at this rate was 10,849. The amount deposited in the year was nearly 17 lakhs, and the amount withdrawn $15\frac{1}{2}$ lakhs.

State Life Insurance.—The scheme for this purpose came into force on the 1st December 1891, and a strong Committee of officers was appointed to conduct the business connected with it. The following were the main provisions of the scheme:—

Insurance was compulsory on all who entered the service after its introduction, but optional with those already in the service. No one over 45 or under 21 was eligible. The premium was 10 per cent. of pay, recoverable monthly, the maximum premium for which a policy would be issued being limited to Rs. 50 a month. The insurer became entitled to a bonus, calculated according to a table prescribed by Government and varying with his age at time of insurance, payable on his attaining the age of 55, or at death if earlier. Proposals to be accepted only after due medical examination.

The results so far are thus returned :—

	No. of applications.	No. accepted.	Monthly premium.	Bonus payable.
1891–2	379	203	Rs. 1,354	Rs. 303,635
1892–3	343	260	1,258½	309,954
1893–4	434	260	694½	186,485
1894–5	541	494	1,699½	458,880

There were 11 casualties, on account of which a total bonus of Rs. 13,567 became payable. There were 1,214 effective policies running in 1895, paying a monthly premium of Rs. 5,066 and assuring in the aggregate Rs. 12,65,746 The surplus funds are placed in the Savings Bank.

VITAL STATISTICS AND MEDICAL SERVICES

Births and Deaths.—Provision is made by all Municipalities for registration of births and deaths within their respective limits. In the villages it is the duty of the Shanbhog, who reports to the Taluq officer. The following are the figures registered from 1881 to 1894, with the ratio per mille of population, and proportion of males to females :—

Year.	Births			Deaths.		
	No.	Rate per mille	Males to 100 females.	No.	Rate per mille	Males to 100 females.
1881 ...	99,223	23·70	103·92	71,240	17·02	105·80
1882 ...	100,756	24·06	106·06	70,892	16·93	105·25
1883 ...	100,903	24·10	104·75	63,243	15·11	104·90
1884 ...	97,089	23·20	104·75	62,531	14·93	105·94
1885 ...	90,591	22·14	104·89	65,112	15·91	102·76
1886 ...	90,708	18·7	105·18	70,324	14·5	108·34
1887 ...	93,120	19·2	103·24	76,074	15·7	111·40
1888 ...	97,982	20·2	105·76	70,791	14·8	108·55
1889 ...	86,864	17·9	103·57	74,618	15·4	106·33
1890 ...	82,524	17·0	105·05	85,007	17·7	108·48
1891 ...	95,922	19·80	104·14	67,982	14·03	106·38
1892 ...	86,603	17·88	104·98	80,149	16·55	110·76
1893 ...	85,858	17·72	104·60	76,594	15·79	111·48
1894 ...	93,928	19·39	106·81	59,847	12·36	110·25

The first four years include the C. and M. Station of Bangalore; the rest are exclusive of that. The diminution of births in 1890 is attributed to the prevalence of influenza, which also accounts for the increase of the death-rate in that year. As regards the low death-rate of 1894 the Senior Surgeon writes: "I am inclined to question the value of the registration statistics, as this is a lower death-rate than exists in England." The death-rate is higher amongst males than amongst females at all ages, except between the years 12 and 30, and 60 and upwards.

The different causes of death are thus stated year by year:—

Head.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889	1890.	1891.	1892-3	1893-4
Cholera ...	25	893	124	330	2,677	10	832	1,015	1,590	1,326	1,204	668	856
Smallpox ...	2,566	7,940	4,840	3,241	3,264	4,175	6,608	5 654	5,242	4,233	5,099	7,229	3,211
Fevers ...	43,842	36,950	33,139	33,207	33,280	39,891	42,668	37,609	41 656	55,102	38,307	44,293	37,853
Bowel complaints ...	4,844	5,032	4,781	4,970	5,429	5,844	5,448	5,861	5,7[illegible]5	5,361	4,935	5,153	4,218
Injuries ...	1,094	1,024	1,024	1,079	1,045	961	987	1,060	1,013	977	1,001	977	1,152
All other causes ...	18,869	19,073	19,335	19,704	19,417	19,443	19,531	19,592	19,352	18,008	17,436	20,189	18 155

The greatest mortality is under the head Fevers, but this includes many diseases other than fever which are accompanied by febrile symptoms. Cholera is usually introduced by pilgrims returning from Tirupati or other sacred places beyond the limits of Mysore. Rest-houses for them have been provided at important points on the usual routes. For the resident population efforts are being everywhere made to ensure a good and pure water supply, which is the first requisite towards the abatement of cholera. To adequately cope with small pox and stamp it out, the Senior Surgeon strongly recommends the making of vaccination compulsory.

There are about 100 vaccinators (including 2 or 3 women), supervised since 1886–7 by a Deputy-Inspector for each District; all the dispensaries also vaccinate. Vaccination from the calf was introduced in 1884–5, but it was found difficult to keep up the stock. Since 1891 there has been a Vaccine Institute, where lanoline paste is manufactured direct from calf lymph according to Surgeon-Major King's method. There were 97,646 primary vaccinations in 1894–5 and 1,271 re-vaccinations.

Medical Relief.—The Senior Surgeon is also Sanitary Commissioner. The Durbar Surgeon at Mysore is also Chemical Examiner. The Medical department was re-organized in 1884, when a local service of

well-qualified Surgeons and Assistant-Surgeons was formed, the subordinates from Madras previously employed reverting to their own province. A Medical School was established in 1881 for the purpose of training Hospital Assistants, but was closed in 1886, and scholarships were given to students to go through a course in the Madras or Bombay Medical Colleges.

On the Bowring Civil Hospital being made over to the administration of the C. and M. Station of Bangalore in 1884, there remained only two first-class institutions, namely, the Maharaja's Hospital at Mysore and the Civil Hospital at Shimoga. But St. Martha's Hospital, opened by the Roman Catholic Mission in 1886, supplied the want of a hospital for the Bangalore City until 1893, when Government connection with it ceased. A temporary hospital has since been opened in the Fort, pending the completion of the new City Hospital which is in course of erection. The six second-class institutions are the hospitals at the remaining District headquarters. Dispensaries in taluq head-quarter and other large towns have been generally established, and in 1895 numbered 97, including 5 for women and children under female hospital assistants. The special hospitals previously existing are also kept up, namely, the Lunatic Asylum, the Leper Asylum, and the Maternity Hospital at Bangalore, the latter now under the Municipality, and H.H. the Maharani's Hospital at Mysore. There are also three Jail hospitals and a dispensary for the Silahdars.

Qualified native midwives are being supplied to all the taluqs as fast as they can be procured, after receiving a training in the Madras Lying-in Hospital, with support either from the State or from the Countess of Dufferin's Fund. In 1895 there were 63 in employ, who attended 3,104 cases. Aid is also given to a private hospital at Mysore in which, under adequate supervision, diseases are treated according to native methods, both Hindu and Yunani.

The following statement shows the number of patients treated in hospitals and dispensaries for fourteen years :—

	In-patients.	Out-patients.	Total.		In-patients.	Out-patients.	Total.
1881 ...	3,114	180,355	183,469	1888 ...	2,766	371.289	374,055
1882 ...	3,298	192,774	196,072	1889 ...	3,768	461,835	485,603
1883 ...	3,463	208,244	211,707	1890 ...	4,143	491,250	495,393
1884 ...	3,284	201,538	234,822	1891 ...	—	—	537,787
1885 ...	1,976	236,398	238,574	1892 ...	4,920	551,711	556,631
1886 ...	1,930	282,075	284,005	1893 ...	6,264	600,540	606.804
1887 ...	2,629	316,572	319,201	1894 ...	8,729	698,186	706,915

The transfer of the Bowring Hospital accounts for the fall in the number of in-patients immediately after 1884.

INSTRUCTION

The Director of Public Instruction, who had held that office for many years, was relieved of the charge of Coorg in February 1882, and of the Civil and Military Station of Bangalore in December 1888. In Mysore his designation was changed in July 1883 to Education Secretary, and he was also appointed Police Secretary and to report on the Census. In August 1884 Police duty was exchanged for Archæology, and in April 1890 Education also. The Head Master of the Maharaja's College, a Parsi, was then appointed Education Secretary, and in July 1895 was called Inspector-General of Education. The headquarters were removed from Bangalore to Mysore in May 1894. Inspection was for some years carried on with the aid of four native Deputy-Inspectors, and eleven Sub-Deputy Inspectors, the latter specially for Hobli schools, except one for Hindustani schools. A European Deputy-Inspector, who was retained for Bangalore, was also Assistant in the Director's office. In September 1891 the number of native Deputy-Inspectors was doubled, and three Assistant Deputy-Inspectors were appointed, the grade of Sub-Deputy Inspectors being abolished. The European Deputy-Inspector died in August 1892.

The cost of vernacular education had been entirely transferred to Local Funds after the famine, and continued to be so borne until 1889. From that time a more liberal grant from Provincial Funds became possible, and the 1·35 lakhs of 1881–2 rose to 1·75 lakhs in 1886–7, to 2·61 in 1889–90, to 3·02 lakhs in 1890–1, and has since increased to 4·84 lakhs in 1894–5. At the same time Local Funds have, in addition, provided for an expenditure of from somewhat less than $1\frac{1}{2}$ lakhs from the years after 1881 to 1·95 lakhs in 1894–5. The total State expenditure on education from all sources, including small sums from Municipal funds, has thus risen from 2·74 lakhs in 1881–2 to 6·82 lakhs in 1894–5. Together with this must be taken into account expenditure from private sources in Aided schools, amounting in 1894–5 to about Rs. 82,000.[1]

The numbers under instruction have steadily increased, as the following figures for ten years past testify:—

[1] These and other figures in this section do not include the C. and M. Station of Bangalore.

Year.	Pupils in Public Institutions.	Pupils in Private Institutions.	Total.	Year.	Pupils in Public Institutions.	Pupils in Private Institutions.	Total.
1885-6 ...	43,240	14,290	57,530	1890-1 ...	72,970	23,457	96,427
1886-7 ...	48,859	14,459	63,318	1891-2 ...	76,288	25,041	101,329
1887-8 ...	54,373	(15,000)	69,373	1892-3 ...	76,963	26,586	103,549
1888-9 ...	59,840	16,378	76,118	1893-4 ...	79,496	26,003	105,499
1889-90 ...	66,501	16,196	82,697	1894-5 ...	83,398	27,662	111,020

Public institutions are those managed, aided or inspected by Government. Private institutions are those that do not conform to Government rules or standards, generally called indigenous schools. From the foregoing statistics it appears that public and private institutions have exactly kept pace with one another, each showing an increased attendance of 51·8 per cent. During the same period the Government expenditure from State funds has increased nearly 35 per cent., and that from both State and Local funds together nearly 46 per cent. The vitality of the indigenous schools is thus apparent, and their equal growth alongside of the public institutions indicates that the desire for education is very general. Grants in aid amounted to Rs. 34,184 in 1885-6, and to Rs. 51,319 in 1894-5.

Distinguishing between boys and girls under instruction, the following are the figures for six years; beyond that complete statistics are not available:—

	Boys.	Girls.		Boys.	Girls.
1889-90	74,640 ...	8,057	1892-3	91,904 ...	11,645
1890-1	86,402 ...	10,025	1893-4	93,312 ...	12,187
1891-2	89,967 ...	11,362	1894-5	98,260 ...	12,760

The numbers of Government and Aided schools, with scholars in each, at two intervals of ten years, were as follows:—

	Government Schools.	Government Scholars.	Aided Schools.	Aided Scholars.
1881-2	923 ...	36,800 ...	114 ...	6,326
1884-5	1,007 ...	35,001 ...	130 ...	7,970
1891-2	1,460 ...	63,041 ...	166 ...	11,834
1894-5	1,576 ...	69,480 ...	191 ...	12,872

If the figures for the Civil and Military Station of Bangalore were added they would considerably swell the totals under Aided schools. A slight drop in the numbers in Government schools between the first and second periods, with a rise in those in Aided schools, was due to the direct action of Government in giving up the junior classes in the two principal colleges and transferring the pupils. This proceeding

accorded with recommendations of the Education Commission convened at Calcutta by the Government of India in 1882–3.

In 1884 the teaching staff of the Colleges and High schools was revised, and the position of the masters much improved by grading them in classes, with provision for regular increments of pay. In 1890 a superior grade was formed of European professors with University distinctions for the first-grade colleges. The regular grading of all other classes of masters has since been carried out, and their service has been declared as superior with regard to pension, whatever the pay.

The standards of instruction have been re-arranged, and passing the second vernacular standard made a necessary preliminary to the study of English. Three years of purely vernacular instruction, followed by eight years of Anglo-vernacular instruction, are intended to form the course leading to matriculation. A Text-book Committee has charge since 1892 of the selection and preparation of suitable school books. A museum of educational apparatus and books was also then formed in the Victoria Jubilee Institute. Local Committees have been entrusted with the management of Girls' schools, and the Committees for Hobli schools have been formed afresh, with definition of their duties. The Karṇáṭaka Bháshojjivini Páthas'ála, founded for promoting the study of Kannaḍa, was in 1894 converted into a Normal school.

In 1887 the Mysore Local Examination, for pupils and teachers in vernacular schools, was instituted, under the management of a Committee. This gave a definite aim to vernacular studies, similar in effect to what was provided for English by the University and Middle School examinations, and proved a great stimulus to the Taluq and Hobli schools. It was modified in 1891 by substituting a Lower Secondary examination in English, Sanskrit and the vernaculars, with a Vernacular Upper Secondary and a Teachers' Certificate examination. A Sanskrit Pandits' examination is held every year before the Dasara at the Maharaja's Sanskrit College, Mysore; and an examination for Kannaḍa Pandits was established in 1893.

The three English colleges are the Central College, Bangalore, and the Maharaja's College, Mysore, both of the first grade, and the Shimoga College, which is of the second grade. The Central College specially instructs in Mathematics and Physical Science as the optional subjects for the B.A. degree, while the Maharaja's College takes Mathematics and History. The Oriental Colleges are the Maharaja's Sanskrit College and the Kannaḍa Pandits' classes at Mysore, and the Sanskrit College, Bangalore. Students' Homes have been established in connection with some of the colleges.

The following is a detailed classification of all educational institutions borne on the returns as they stood on the 30th of June 1895 :—

Institutions.	Government.		Aided.		Unaided.		Total.	
	No.	Pupils.	No.	Pupils.	No.	Pupils.	No.	Pupils.
PUBLIC INSTITUTIONS.								
University Education.								
Colleges, English ...	3	410	—	—	—	—		
,, Oriental ...	2	39	1	84	—	—	6	533
School Education, General.								
Secondary Schools—								
High Schools, English (for Boys)...	10	1,733	3	1,691	—	—	13	3,424
Middle Schools, English (for Boys)...	46	7,998	15	1,248	1	44		
Vernacular (for Boys)	77	8,191	11	1,360	—	—	150	18,841
Middle Schools, English (for Girls)...	—	—	5	475	1	37		
Vernacular (for Girls)	4	1,006	5	579	—	—	15	2,097
Primary Schools—								
For Boys...	1,356	46,155	62	2,686	20	754	1,438	49,595
,, Girls...	70	3,390	54	3,595	5	166	129	7,151
School Education, Special.								
Training Schools for Masters	1	106	—	—	—	—	1	106
Training Schools for Mistresses	1	23	—	—	—	—	1	23
Industrial Schools ...	2	93	3	65	—	—	5	158
Sanskrit Schools ...	1	91	32	1,089	3	45	36	1,725
Jail Schools	3	245	—	—	—	—	3	245
Total ...	1,576	69,480	191	12,872	30	1,046	1.797	83.398
PRIVATE INSTITUTIONS.								
Advanced	—	—	—	—	21	497		
Elementary	—	—	—	—	2,079	27,125	2,100	27,622
Grand Total ...	1,576	69,480	191	12,872	2,130	28,668	3,897	111,020

The High Schools are the Anglo-vernacular schools at the head-quarters of each District and at Chik Ballapur and Channapatna, with

the London and Wesleyan Mission High Schools at Bangalore, and Wesleyan High School at Mysore. They work up to the matriculation standard of the Madras University. All the Government High Schools, except two, are under native Head-masters. The Middle Schools are mostly Taluq schools, preparing for the Local examinations, with a proportion of Aided Mission and other schools. The prevailing languages taught are Kannaḍa or Hindustani, with a little English in some. Fees for Muhammadans have been reduced to a half. The Primary schools are Hóbli or Village schools. In addition to Kannaḍa schools, which form the bulk, there are Hindustani and Telugu, with a few Tamil and Mahratti schools where needed; also Night schools for adults.

Female education has made considerable progress. Though Mission schools had long held the field and done much good, and some Government schools had also been at work for a considerable time, a special impulse was given to the movement by the establishment of the Maharani's Caste Girls' School at Mysore in 1881. It commended itself by combining a partially Hindu course of study with Western methods of instruction; and, backed by the patronage and influence of the Palace, set a fashion since followed in other schools. All along liberally aided, it was taken over entirely by Government in 1891, but is conducted on the same lines as before, under the management of a Committee; and a similar course has been adopted with the remaining Girls' schools. The present superintendent is a lady from Girton College, who has taken Honours in the Mathematical tripos at Cambridge. Home education classes have been formed for girls obliged to leave school.

The Normal School for masters was opened in 1894, and contains 94 Hindus and 23 Muhammadans. The Training School for mistresses is held in the Maharani's School, and some young widows are also under preparation there for the same calling.

The Government Industrial schools are at Mysore and Hassan. The pupils are of all castes and are mostly supported by scholarships. They learn carpentry, rattan work, blacksmiths' and other mechanical work, with drawing and modelling. Of the Aided Industrial schools, two are Wesleyan, at Hassan and Túmkúr; the former for orphan girls, who learn to knit woollen caps and stockings; the latter for orphan boys, who learn carpentry, rope-making, bricklaying, &c. The other school is Roman Catholic, at Mysore, where carpentry and gardening are taught, as well as the violin, with a view to providing bandsmen.

ARCHÆOLOGY

ARCHÆOLOGY had for many years received informal attention. A number of inscriptions photographed by Colonel Dixon in 1865, under the orders of Mr. Bowring, were translated by the Director of Public Instruction, and published in 1879, with additions, under the name of Mysore Inscriptions. In August 1884 he was relieved of Police work in order to give more time to antiquities, and in January 1885 was appointed Director of Archæological Researches in addition to his office as Education Secretary. The Coorg Inscriptions were published by him in 1886. In March 1888 a regular Archæological department was formed under him, and in April 1890 he was relieved of other duty for the time, but later on was appointed also to compile the present work.

Epigraphy.—The entire country has been surveyed and copies of all inscriptions taken *in situ*. The number discovered is nearly 9,000, and they are in course of translation and publication under the designation of Epigraphia Carnatica. A volume of 144 Jain inscriptions at S'ravana Belgola was published in 1889; another, containing 803 inscriptions in the Mysore District, was published in 1894; and a further volume, with 880, completing that District, is approaching completion. Volumes relating to the other seven Districts are also going through the press.

The results obtained by the Survey have exceeded expectation. The most notable discovery was that of Edicts of A'soka in the Molkalmuru taluq in 1892, an event which has been described by one of the highest authorities as forming "an epoch in Indian archæology." The Jain inscriptions relating to Bhadrabáhu and Chandra Gupta, the Sátakarni inscription in Shikarpur taluq, the Kadamba inscription at Talgunda in the same, and one at Anaji in Davangere taluq, have brought to light ancient records of the highest value for the history of the first centuries. The Vokkaleri inscription opened the eyes of scholars to the true significance of the Pallavas. The clean forgotten dynasties of the Mahávalis or Bánas, and of the Gangas who ruled Mysore for so long, have been restored to history. The chronology of the Cholas has been for the first time definitely fixed. The birthplace of the Hoysalas has been discovered, and their history worked out in detail. Great additions have been made to information relating to the Chálukyas, the Ráshtrakútas, the Noḷambas, the Vijayanagar kings, and other more modern dynasties.

Numismatics.—An important find, the first in Mysore of this kind, was that of Roman coins in 1892 near Yesvantpur, in making the cutting for the Hindupur railway. There were 163 silver coins, *denarii* of the early emperors—Augustus, Tiberius, Caligula and Claudius, with one of Antonia—ranging in date from 21 B.C. to 51 A.D. The find of Buddhist leaden coins near Chitaldroog has been referred to above, p. 293. That of old Indian coins at Nagar is mentioned in the appendix. Gold coins of the Hoysalas, before unknown, have been identified and the legends deciphered.

Architecture and Sculpture.—Information under these heads will be found on pp. 509ff. Steps have been taken for conserving ancient monuments of importance, such as the A'soka inscriptions, the Bhadrabahu inscription and façade of the Chandra Gupta basti at S'ravana Belgola, the Halebid, Somnathpur, Arsikere, and other temples.

Ancient Manuscripts.—The search for these has extended over many years. The results obtained are already summarised in the chapter on Literature, pp. 495ff.

MISCELLANEOUS

Muzrai.—This department administers the revenues of endowed religious and charitable institutions, that is, temples, mosques, and chattrams. There are 1,814 within Mysore, and 29 in British territory. The revenues consist of large grants of land and money payments by former rulers, and of deposits of money funded by votaries for the fulfilment of certain vows and ceremonies. A separate Muzrai Superintendent was appointed in 1892 to more effectually control these institutions and to rectify the abuses which had crept in. A regular system of budgets and sanctions has been introduced. The power of sanction vested in the ruler to nominations of gurus of maths has been re-asserted. Provision for more light and air is being gradually made in the temples as they come under repair, and the appearance and surroundings are being improved so as to be more in keeping with their character as places of worship. Funds and endowments alienated or misapplied by the priests are being restored to their original purpose. Committees of local residents of influence as Dharmadarsis are being appointed to maintain a proper supervision. The priests are required to be men of some learning in regard to their duties, and qualified to command respect. Dancing girls are being

gradually eliminated from the temples. Overgrown establishments of ill-paid menials are being reduced and only a sufficient staff retained, more adequately paid. The abuses in distribution of food at chattrams are being checked, and arrangements made to carry out their legitimate functions of affording shelter to travellers and pilgrims.

APPENDIX

COINS, WEIGHTS AND MEASURES

OWING to the number of Principalities into which the Mysore country was broken up on the subversion of the Vijayanagar empire, each of which arrogated to itself the sovereign right of coining its own money ; and to the subsequent conquests in succession by various rival powers, each of whom introduced a separate coinage, which passed into circulation along with the divers kinds previously current ; nothing could be more confused or perplexing than the whole monetary and metric system down to the time of the British assumption.[1] But a measure of uniformity may now be said to prevail, though calculations continue to be made on the former system of each locality. The introduction of English figures into all the Government accounts since 1863, and the increase of European officers and settlers, have led to increasing regularity ; while the system of arithmetic taught throughout the Government schools, though recognizing to some extent the methods of the country, is calculated to bring in a conformity with the practice observed throughout British India.

Coins

AMONG the oldest Indian coins that have been found in Mysore are those of lead (*see* p. 293), of the time of the A'ndhra or S'átaváhana kings.[2] Sir Walter Elliot remarks that " the characteristic of their coinage was the employment of lead with but a small proportion of copper. General Pearse called attention to a passage in Pliny to the effect that India has neither brass nor lead, receiving them in exchange for precious stones and

[1] The value of the different coins, says Buchanan, was frequently changed by Tipu Sultan in a very arbitrary and oppressive manner. When he was about to pay his troops, the nominal value of each coin was raised very high, and kept at that standard for about ten days ; during which time the soldiery were allowed to pay off their debts at the high valuation. After this the standard was reduced to the proper value.

After the conquest of the country, the *nirak*, or rate of exchange by which all the different coins could be offered as a legal tender of payment, was periodically fixed, generally once or twice a month, at the various centres of trade, by the Amildar, who first consulted the principal merchants. In Bangalore, the nirak was fixed by the European Officer commanding in the Fort.

[2] The illustration given from this find is from a coin kindly lent by Dr. Hultzsch. The obverse shows a bull standing, with the legend round it . . *Pulumáyi mahárája* . . . . On the reverse is a fir-tree and the *chaitya* symbol.

pearls, which may afford some explanation of this peculiarity. The lead is generally very pure, a careful analysis detecting only a trace of copper. One class of coins was found to consist of a kind of speculum of an alloy of lead and tin, and another of an impure lead ore, which gave them the appearance of a coarse alloy. They are stamped with symbols of a Buddhist character. The reverse has figures of a lion or horse [or bull] with the name of the sovereign. but his effigy, never . . . The pieces vary greatly in size; they are generally round, sometimes square."

The same writer says,—"In all the countries with which we are best acquainted, the metal first used for monetary purposes was silver, to which India (except in the case of the A'ndhras) forms no exception. The proportion of bullion to be given as a medium of exchange was adjusted by weight. In course of time, to obviate constant recourse to the scales, the use of uniform pieces, certified by an authoritative mark, suggested itself. Such pieces, taken from a bar or plate, trimmed and cut to the required standard weight, received the impress of a symbol, guaranteeing their acceptance.

At what time and by what people they were first employed is unknown. They were regarded as prehistoric by the older Indian writers, and may therefore be presumed to have been found in circulation when the Aryans entered Hindustan. They have no recognised name in any of the vernacular dialects. They appear, however, to have been known to the earlier Sanskrit writers under the designation of *puráṇa*, a term which itself signifies ancient.

The oldest Indian examples are of all shapes, oblong, angular, square, or nearly round, with punch marks on one or both sides, the older signs often worn away by attrition; in almost all cases the earlier ones partially or wholly effaced by others subsequently super-impressed upon them. Other specimens, which are more circular and thicker, with sharper attestations, are probably of later date. All weigh about 50 grains troy. A parcel of forty-three very old-looking pieces, part of a large find in Nagar or Bednur, weighed 2,025·5 grains, giving an average of 47·1, but the heaviest was 50 grains, the lightest only 37·75.

Before quitting the subject it may be asked where the supply of silver was obtained to meet the circulation of so great an extent of country. Gold, iron, and copper were found in many parts of India, but no silver so far as I know. It must therefore have been imported from abroad."[1]

The later coins of the country were either of gold, silver, or copper. Gold coins, at first so numerous, are now rarely seen, and the silver and copper coins in general use at the present time are those of the British Indian currency. According to Ferishta, there was no silver coinage in the Carnatic countries at the beginning of the fourteenth century, and even three centuries later we find only gold and copper coins in existence. In fact, it was not till the Muhammadans were permanently established in the South, that their preference for the rupee led to the introduction of a silver currency, without, however, displacing the gold previously in circulation.

[1] *Coins of Southern India*, 22, 45, 49ff.

Gold Coins.—These are known to Europeans as *pagodas, fanams* and *mohurs*. The pagoda is an original Hindu coin, called *varaha*, from the symbol on it of the varáha or boar, one of the incarnations of Vishnu, which formed the crest of the Chálukyas and of the Vijayanagar kings. In some parts it seems also to have been called *chakra*. Before the rise of the Chálukyas the pagoda was probably called *suvarṇa* or *nishka*. It also had in Kannaḍa and Telugu the name *gadyâṇa*. In Hindustani the coin is known as *hun*. There were various pagodas,[1] named from the States in which they were severally coined. A half pagoda was called *pon* or *hon*, and at a later period, under Vijayanagar, also *pratápa*. The fanam is properly *haṇa* or *paṇa* (a word used also for money in general), and is doubtless a corruption of the neuter form paṇam. As with the pagodas, so there is a variety of fanams issued from different mints. The mohur is a Muhammadan coin, bearing the impression (*mohur*) of a seal or stamp. Mohurs came into circulation with the Bijapur and Mughal conquests, and some were coined in Mysore by Tipu.[2]

The oldest gold coins (to further cite Sir Walter) are spherules, quite plain and smooth, save for a single very minute punch-mark, too small to be identified, by the impress of which they have been slightly flattened. In Old Kannaḍa they are called *gulige*, a globule or little ball, whence the sign *gu* with a numeral is employed in old accounts as the sign for expressing pagodas. These were succeeded by flat round thicker pieces of superior workmanship, which have received the name of *padma-ṭankas*, from having what is called a lotus in the centre. The use of the punch gradually gave way to the employment of a matrix or die. This was at first of the simplest form, and the coins appear to have been struck upon the single symbol placed below, the additional symbols being added by the old-fashioned process around the central device. The force of the blows in many instances gave the upper side a concave surface, and this, though accidental, may have led to the use at a later period of cup-shaped dies, as in the *Ráma-ṭankas*. The adoption of the double die led eventually to the final and complete disuse of the punch.

The gold coins of the principal Mysore dynasties may here be described, much of the information being from the same source. Those of the

[1] Pagoda is a word of Portuguese origin, commonly applied by Europeans to a Hindu temple, and given to this coin perhaps from the representation that appears on it, in some parts, of a temple.

[2] This Appendix had been already compiled before chance brought into my hands a valuable little pamphlet on the *Coins of Mysore and Southern India*, by Captain H. P. Hawkes, Assistant Commissary-General, prepared for the Madras Exhibition of 1857. Some additional information thence derived has been incorporated. I also at the same time met with *Assay Tables of Indian Coins*, by Dr. Shekleton, Assay Master of H.M.'s Mint, Calcutta, which furnished several particulars.

In this revised edition some particulars and illustrations have been added from Sir Walter Elliot's *Coins of Southern India* in the *Numismata Orientalia*, Mr. Edgar Thurston's Catalogue of Mysore Coins in the Madras Museum, and Captain R. H. Campbell Tufnell's Catalogue of those in the Bangalore Museum.

Gangas have an elephant on the obverse and a floral design on the reverse. Weight of the specimens, 52·3 and 58·5 grains. The characteristic device of the Kadambas is a lion looking backwards. One coin has on the obverse a *padma* in the centre, with four punch-struck retrospectant lions round it. On the reverse are a scroll ornament and two indented marks. Weight, 58·52 grains. Another has on the obverse a lion looking backwards, with the legend (?) *Ballaha* in Kannaḍa below. On the reverse is an indistinct object, surrounded with a circle of dots and an ornamental outer circle beyond. Examples of Ráshtrakúta coins have so far been found only in silver, and that recently. They resemble the Græco-Parthian coins which circulated in Gujarat more than those of Southern India. On the obverse of those found is the head of the king, and on the reverse the legend *parama mahés'vara mátápitṛipadanudhyáta S'rí Krishna Rája.* Weight, about 33 grains.

The Chálukya coins had the boar on the obverse and the *padma* or *chakra* on the reverse. Weight, 58 grains. But some interesting coins of the Eastern Chálukyas, belonging to the eleventh century, which have been found only in an island off the coast of Burma and in Siam,[1] are large thin plates, having on the obverse a boar in the centre under an umbrella with a *chauri* on each side ; in front of the boar and behind it a lamp-stand ; under the snout of the boar the Old-Kannaḍa letter *ra.* Round these emblems is the legend *S'rí Chálukya-Chandrasya* on some, and *S'rí Rájarájasya* on others, both in Old-Kannaḍa letters, impressed by separate punch-marks. The reverse is plain. Weight, 65·9 to 66·6 grains.[2] The Kalachuri coins have on the obverse a human figure with a *garuda* or bird's head, advancing to the right. On the reverse, in three lines of Old Kannaḍa, one has . . . . *Murári* . . . , and another, *Rája Sova bhaṭa* . . . Weight, 54·5 and 52·2 grains.

The Hoysala coins (which were unknown until the publication of the first edition of this work, and of which only a few specimens have been found) have on the obverse a *s'árdúla* or mythical tiger, facing the right, with a smaller one above, which is between the sun and moon : in front of the larger tiger is (?) an elephant goad or lamp-stand. On the reverse is a legend in three lines of Old-Kannaḍa letters. One coin has *S'rí Talakáḍu goṇḍa,* another has *S'rí Noṇambaváḍi goṇḍa,* and a third has *S'rí Malaparoḷ gaṇḍa.* The two first, weight 61·75 and 63 grains, must be of the time of Vishnuvardhana, and perhaps the third also.

The Vijayanagar coins have on the obverse, some, S'iva and Párvati seated, others the *gaṇḍa bheruṇḍa,* a fabulous two-headed bird, either alone or holding elephants in beaks and claws, and others again have some different device.[3] On the reverse is the king's name in three lines of Nágarí or Kannaḍa letters, such as, *S'rí pratápa Harihara,* or *S'rí pratápa Achyuta Ráya,* or *S'rí pratápa Sadás'iva Ráya,* and so on. Weight, 52·6 grains. One of Tirumala-Ráya has Ráma and Síta on the obverse, seated,

[1] Since the above was written some have been found near the Godavari.

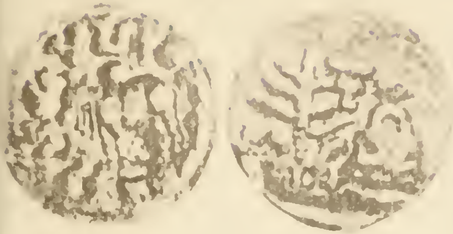
[2] *See* Dr. Fleet's account, *Ind. Ant.*, xix, 79.

[3] *See* Dr. Hultzsch in *Ind. Ant.*, xx, 301.

Plate I

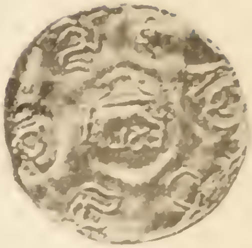
LEAD AND GOLD COINS

L



Ándhra

G



E Chálukya

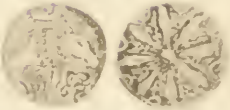
G

Padma tanka

G

Chalukya

G

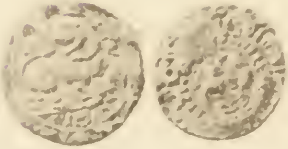


W Chálukya

G

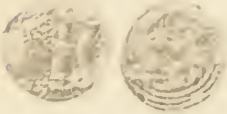
Kadamba

G



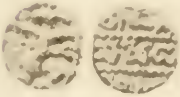
Kadamba

G



Ganga

G

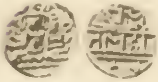


Kalachuri

G

Hoysala

G



Vijayanagar

with Lakshmana standing. On the reverse is *S'rí-Tirumala-Ráyulu* in Nágari letters. One of Venkatapati has on the obverse Vishnu, standing under an arch ; and on the reverse, in Nágari letters, *S'rí Venkaṭes'varáya namaḥ*.

Of the Mysore Rájas the first to establish a mint was Kanṭhirava Narasa Rája, who ruled from 1638 to 1659. He coined fanams only (*Kanṭhiráya hana*), but ten of these were taken to be equal to a varaha or pagoda, which had, however, no actual existence, but was a nominal coin used in accounts only. And even after the coins struck by him had become obsolete, the accounts continued to be kept in Kanṭhiráya varaha and hana, the Canteroy pagodas and fanams of the English treaties with Mysore and of the official accounts down to the time of the British assumption. The Mysore Rájas are said not to have coined varahas, but specimens exist of a Chikka Deva Rája varaha which must have been coined by that celebrated king, who reigned from 1672 to 1704. On the obverse is Bála Krishna trampling on the serpent Káliya, and on the reverse, in Nágari characters, *S'rí Chika Deva Ráya*. This king adopted the monogram *De*, which continued to be the Mysore Government mark down to quite modern times. It is used on many of his coins, but not (I think) on the gold coins ; it appears only on the obverse of the copper coinage, along with the elephant.

The pagodas or varahas in general circulation were those coined by the Ikkéri rulers of Bednur. The Ikkéri varaha followed the Vijayanagar coinage in having S'iva and Párvati on the obverse, while on the reverse was *S'rí Sadás'iva*, or simply *S'rí*, in Nágari letters. Weight, 53 grains. After his conquest of Bednur, Haidar Ali issued the same coin under the name of Baháduri hun, retaining the old obverse of S'iva and Párvati, but putting on the reverse his own Persian monogram or initial surrounded with a circle of dots. A coinage of it at Bangalore was known as the Doḍḍa-tale Bengalúri, or big-headed Bangalore pagoda. Under Tipu Sultan it was issued as the Sultáni hun. The obverse bore the legend *hun al-Sultán ul-ádil san* (pagoda of the just king) in Persian characters. On the reverse, besides Haidar's monogram, the number of Tipu's regnal year, and often below it in Persian the name of the city in which the coin was struck (*Nagar*, *Patan* for Seringapatam, *Dharwar*, and so on) were included within the circle of dots. Some were called Fárúkhi hun from the word *Fárúkhi* (after the name of the second Khálif) appearing on them as well as the name of the mint town and Haidar's initial. On the obverse was *Muhammad wohu ul-wohid ul-Sultán ul-ádil* (Muhammad. He alone is the just king), with the year.

When recoined by Purnaiya at Mysore and Nagar as the new or Hosa Ikkéri varaha, the original device of S'iva and Párvati was restored on the obverse, and *S'rí* in Nágari on the reverse. Krishna Rája Wodeyar, on assuming the government in 1811, issued it as the Krishna Rája varaha, retaining the same obverse, but putting *S'rí Krishṇa Rája* in Nágari characters on the reverse. It was also called (according to Buchanan) Kartar Ikkéri varaha.[1]

[1] Kartar means the ruler or ruling king, as distinguished from the Dalaváyi, who is the head of another branch of the royal family.

Of other pagodas coined by local rulers may be mentioned the Durgi varaha, coined at Chitaldroog, probably by Barma Náyak, in 1691. It bore on the obverse a bull-headed figure representing Durgi, and on the reverse, in Nágari characters . . . *Náyaka Ráya.*

Half-pagodas generally followed the type of the corresponding pagodas. But some quarter-pagodas of Pratápa Deva-Ráya II of Vijayanagar, who was specially distinguished as *gaja-bentekára*, or elephant-hunter, have the device of an elephant on the obverse.

The following list contains particulars regarding the various gold fanams and mohurs :—

Name.	By whom coined.	Symbols or Legends.	
		Obverse.	Reverse.
	Fanams.		
Kanthiráya haṇa[1]	Kanthirava Narasa Rája	Figure of Narasimha	Sun and moon, or *Srí Kanthirava* (in Nágari)
Chikka Deva Rája haṇa	Chikka Deva Rája	,, Chámundi	*Chikka Deva Rája* (Kan)
Ikkéri haṇa	See pagodas of same name	—	—
Baháduri ,,	,, ,,	—	—
Kalikat (Calicut) haṇa	Haidar Ali	—	Haidar's monogram, in circle of dots
Adda Kalikat haṇa	,,	—	,, ,,
Sultáni[2] ,, ,,	Tipu Sultan	*Kalikat, san* 1166	,, ,,
,, haṇa (*aval*)[3]	,,	*Zarb e Patan, san,* in circle of dots	,, ,,
,, ,, (*duyam*)	,,	,, ,,	,, ,,
Nagar Sale haṇa	,,	*Zarb e Nagar, san* 1200	,, ,,
Dhoti ,,	,,	*Farhi* 1218	,, ,,
Sayad Sale ,,	,,	*Khalekhabad*[4] *zarb* 1217	,, ,,
Ballapur ,,	Abbas Khuli Khan	*Bálápur*[5] (Hind.)	*Ba*[lápur] (Hind.)
Bádsháhi	Haidar Ali (?)	*nishán Haidar* (Hind.)	[Ba]*lapú*[r]
Chik Ballapur haṇa	,, (?)	*Bálá*[pur] (Hind.)	? Mahratti characters
Devanhalli ,,	—	—	—

[1] Commonly written Canteroy fanam. This was afterwards called the *agala Kanthiraya haṇa* or broad Canteroy fanam, to distinguish it from a re-issue made by Purnaiya, which was called the *gidda Kanthiraya haṇa* or small thick Canteroy fanam.

[2] This coin was re-issued more than once by Tipu.

[3] The words *aval* (first) and *duyam* (second) relate to the difference in size: the latter is also called *giḍḍa haṇa*.

[4] Khalekhabad was the name given by Tipu to Chandgal near Seringapatam.

[5] It is singular how two or three letters only of the name Balapur, apparently taken at random, are stamped on these coins (figured by Captain Hawkes) as shown out of the brackets. It would seem as if a strip of metal had been stamped with the name, and then cut up into coins, whence a few letters only appeared on each.

Name.	By whom coined.	Symbols or Legends.	
		Obverse.	Reverse.
Nandi hana	—	—	—
Sirpi ,,	—	—	—
Mamur Khan ,,	—	—	—
Aval Muhammad Shahi	—	*Muhammad Shah*	*zarb Kolar*
Hoskota hana	—	—	
Kunigal ,,	Kempe Gauda	? Coat of chain mail	Two faint circles
	Mohurs.		
Sultáni ashrafi, or Ahmadi[1]	Tipu Sultan	*dín Ahmad dar jahán roshan se fatteh Haidar ast*:[2] *zarb Patan, sál Azal* 1197 *Hijri*	*wohu ul wohid al Sultán ul ádil siyum Bahári*[3] *sál Azal san* 2 *julús*
Siddiki (half mohur)	,,	*Siddiki, zarb e sál Sárá*	*Julús*

Silver Coins.—These came in, as already stated, with the Muhammadans. and were first coined in Mysore by Tipu Sultan. The coins were *rúpáyi*, or rupees (so called from a word meaning silver), and *fanams*. The following is a table of silver coins :—

Name.	By whom coined.	Symbols or Legends.	
		Obverse.	Reverse.
	Rupees.		
Nokara (double rupee), or Haidari	Tipu Sultan	*dín Ahmad dar jahán roshan se fatteh Haidar ast. zarb Patan sál Azal san* 1198 *Hijri*	*wohu-ul-wohid al Sultán ul ádil, siyum Bahári sál Azal san* 2 *julús.*
Sultáni rúpáyi, or Imámi	,,	,, ,,	*hun Sultán wohid uládil* &c. as above
Sultáni ádha rúpáyi (½ r.), or A'bidi	,,	,, ,,	,, ,,
Bákhiri (¼ r.)	,,	*Alla Muhammad hun al Sultan ul ádil san* 1218.[4]	*Bákhiri, san* 7 *Patan*

[1] The Ahmadi was so named from Ahmad, a designation of the Prophet ; the Siddiki from Abu Bakr Siddiq, the first Khalif. (See *Ind. Ant.*, xviii, 314.)

[2] The religion of Muhammad is made illustrious in the world through the victory of Haidar.

[3] *Siyum Bahári*, or the third day of Bahári, was the date of his accession to the throne, and of his assuming the title of Sultan, corresponding with the 4th of May. But it was fated also to be the date of his overthrow and death.

[4] Slight differences occur in the inscriptions, but they are all to the same effect.

Name.	By whom coined.	Symbols or Legends.	
		Obverse.	Reverse.
Jáfari ($\frac{1}{8}$ r.)	Tipu Sultan	*Muhammad san* 1226 *zarb Patan*	*Jáfari, san* 12 *julús*
Kázimi $\frac{1}{16}$,,)	,,	,,	*Kázimi,* ,,
Khizri ($\frac{1}{32}$,,)	,,	*Zarb dar ul Saltanat*	*Khizri,* 12
Rája rúpáyi	Krishna Rája Wodeyar	*Sikka zad bar haft kashúr sáya fazl al khámi dín Muhammad Shah Alam bádsháh*	*zarb Mahisúr san* 47 *julús mayimanat mánús*[1]
,, ardha rúpáyi ($\frac{1}{2}$ r.)	,, ,,	,, ,,	,, ,,
,, pávali ($\frac{1}{4}$,,)	,, ,,	Figure of Krishna, surrounded with dots.	*Kishen Raj Wodeyar san* 1244 *julús, zarb Mahisúr* (in Hind.) surrounded with dots[2]
	Silver Fanams.		
Adda ($\frac{1}{2}$ fanam)	Krishna Rája Wodeyar	Figure of Krishna	*Mayili hana*[3] (Kan.)
Hága ($\frac{1}{4}$,,)	,, ,,	,, ,,	,, ,,

The rupee or Imámi of Tipu Sultan was named after the twelve Imáms, and the other silver coins after individual Imáms. Thus the Haidari was named after Haidar, a surname of 'Ali, the first Imám ; the A'bidi, after Zainu'l-ábidín or A'bid Bímár, the fourth ; the Bákhiri, after Muhammad Bákhir, the fifth ; the Jáfari, after Jáfar Sádikh, the sixth ; and the Kázimi, after Músá Kázim, the seventh. The Khizri was named after Khwája Khizr, a prophet who is said to have drunk of the water of life. (See *Ind. Ant.*, xviii, 314.)

Persian having become established as the official language, the coins at first struck by Krishna Rája Wodeyar bear inscriptions in Persian. The Rája rupee was issued in the name of the Mughal emperor, Shah 'Alam, following the type of the rupees issued by the East India Company at Arcot and elsewhere; but the dates and regnal years given are irreconcileable. The legend on the obverse signifies—" The defender of the religion of Muhammad, the reflection of divine excellence, the emperor Shah 'Alam struck this coin, to be current throughout the seven climates." As regards the latter, Moor says :—" When Timur, establishing his throne in India,

[1] Only a portion of the inscription occurs on each coin. Some of these may have been coined first under Purnaiya.

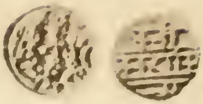
[2] Some are dated according to the Kali yuga.

[3] Called the *mayili fanam*. The meaning of *mayili* is not very clear. It may mean *may ili*, reduced body, or thin. Another possible, but not very probable, explanation is *Mayi*, contraction for Mayisúr, and *li*, the locative suffix. This would mean " in Mysore," indicating the mint town. The only other meanings of *mayili* in Kannada are—dirty, and small-pox, neither of which is of any use here.

G

Hoysala

G



Ikkéri Varaha

G

Kanthiráya hana

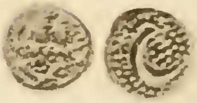
C

Old Mysore

G

Bahádurı hun

G

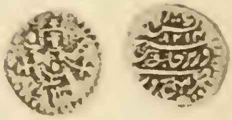


Sıddıkı (½ mohur)

C

Mayılı cash

S



Krishna Rája pávalı

G

S

Imámi (rupee)

overcame the kings of Cashmere, Bengal, Deccan, Gujarat, Lahore, Poorub and Paishoor, he united the kingdoms, and called himself conqueror and sovereign of the seven climates or countries; which title has been retained by his successors." The inscription on the reverse means—"coined at Mysore in the 47th (or other) year of the auspicious reign."

Copper Coins.—The copper coins were *duḍḍu*, or dubs (Hindustani *paisa*), and *kásu* or cash. They as a general rule, from the earliest times to which they have been traced, bore on the obverse the figure of an elephant, *áne*, whence the name áne or anna, though the latter term is perhaps a compromise between *haṇa* and *áne*. Above the elephant was afterwards introduced the moon, and later on the sun also. The reverse consisted of crossed lines. There was also a half *paisa*, with a tiger on one side and a battle-axe on the other, which may have been a Hoysala coin, though it has been suggested that it was a type tried but abandoned by Tipu. But, besides these, there was an old series bearing on the obverse a Kannaḍa numeral, from 1 up to 31, in a ring of dots, with the crossed lines reverse. They are attributed to the Mysore Rájas who immediately preceded Haidar Ali. Tipu brought in a new copper coinage with fresh names of his own invention. The old device of the elephant, with sun and moon, was retained on the obverse, the Arabic letter for the number of the regnal year being inserted above. On the reverse, in Persian, were the name of the mint town, the date, and the name of the coin. His double *paisa* had at first been called Usmáni by Tipu, after Usmán, the third Khalif. But subsequently he adopted the names of stars for his copper coins. The Usmáni thus became the Mushtari, after Jupiter; the *paisa* was called Zuhra, after Venus; the half *paisa*, Bahram, after Mars; the quarter *paisa*, Akhtar, meaning star; and the one-eighth *paisa*, Khutb, after the Pole-star (*see Ind. Ant.*, *l. c.*).

Under Krishna Rája Wodeyar a *kásu* or *áne kásu* was first coined bearing the elephant, with sun and moon on one side, and on the other *S'rí Krishna Rája*, in Nágari letters. Later on were issued the *mayíli kásu*.[1] To the same obverse as above was added *S'rí* in Kannaḍa, over the elephant; but the reverse bore the inscription *V cash* in English (or X or XX as the case might be), with *mayíli kásu* 5 (or 10 or 20), in Kannaḍa. Afterwards the English was put below the Kannaḍa, and *Chá* (for Chámundi) in Kannaḍa added at top. At a later period *S'rí Chámundi*, in Kannaḍa, was inserted above the elephant on the obverse, and *Krishna*, in Kannaḍa, put at the top of the reverse.

Eventually the tiger (or lion) of Chámundi was substituted for the elephant on the obverse, and the reverse had *Krishna* (Kan.) in the centre, surrounded by a circle containing the words *XXV cash*[2] (Eng.), *zarb Mahisúr* (Pers.), and *Mayíli kásu* 25 (Kan.). The smaller coins had only *Krishna* (Kan.) *zarb Mahisúr* (Pers.), and the numeral 5 or 10.

The mint was removed from Mysore to Bangalore in 1833 and abolished in 1843. The last coin struck has the tiger (or lion) of Chámundi on

[1] Mayíli is spelt in English on some coins *Meillie* and on others *Mailay*.

[2] So badly printed in some specimens that it reads as UAUH.

the obverse, with *S'ri* (in Kan.) and sun and moon above, and 1843 (in English) below. On the reverse is *Krishna* (in Kan.), *Mahisúr zarb* (in Hind.).

The following coins now in circulation are those of British India, together with a few native copper coins, which however since 1863 are being withdrawn and sold, broken up, as old copper.

Copper.	Kásu	Pie or cash	*Silver.*	Dodd áne	2 annas
	Duggáni	$\frac{1}{2}$ duddu, 2 pie		Pávali	$\frac{1}{4}$ rupee
	Múr kásu	$\frac{1}{4}$ anna		Ardha rúpáyi	$\frac{1}{2}$ rupee
	Duddu	$\frac{1}{3}$ anna		Rúpáyi	Rupee
	Ardháne	$\frac{1}{2}$ anna			

Accounts.—In order to explain the way in which accounts were written, it is necessary to describe the system of fractions and signs. The following are the names of the fractional parts :—

|||	Mukkálu	$\frac{3}{4}$	≡	Múrvísa	$\frac{3}{16}$	|||	Mukkáni	$\frac{3}{64}$
||	Are	$\frac{1}{2}$	=	Béle	$\frac{2}{16}$	||	Arevísa	$\frac{2}{64}$
		Kálu	$\frac{1}{4}$	—	Vísa	$\frac{1}{16}$			Káni	$\frac{1}{64}$

The fractional parts of a pagoda, rupee, or fanam were expressed by the marks above exhibited, but the terms varied with the coin. Pagodas were marked by prefixing ಗು *gu*, rupees by prefixing ರು *ru*, and fanams were distinguished by prefixing the mark ೯̅, called *makára*, the tail of which was extended over the lower denominations to the right.

Names of fractional parts of coins and mode of writing them.

Value.	Pagoda.		Rupee.		Fanam.	
1	ಗು ೦	varaha	ರು ೦	rúpáyi	೯̅೦̅	opphaṇa
$\frac{3}{4}$	ಗು |||	muddharaṇa	ರು |||	muppávali	೯̅೦̅|||̅	muppága
$\frac{1}{2}$	ಗು ||	honnu, pratápa	ರು ||	adhéli	೯̅೦̅||̅	aḍḍa
$\frac{1}{4}$	ಗು		dharaṇa	ರು		pávali	೯̅೦̅|̅	hága
$\frac{3}{16}$	ಗು ≡	muddugula	ರು ≡	múráṇe	೯̅೦̅೦̅≡̅	múru vísa
$\frac{2}{16}$	ಗು =	chavala	ರು =	eraḍáṇe	೯̅೦̅೦̅=̅	béle
$\frac{1}{16}$	ಗು —	dugula	ರು —	áne	೯̅೦̅೦̅—̅	vísa
$\frac{3}{64}$	ಗು |||	múru boṭṭu	...		೯̅೦̅೦̅೦̅|||̅	mukkáṇi
$\frac{2}{64}$	ಗು ||	eraḍu boṭṭu	...		೯̅೦̅೦̅೦̅||̅	are visa
$\frac{1}{64}$	ಗು		boṭṭu	...		೯̅೦̅೦̅೦̅	̅	káṇi

In the west, the mode of writing the accounts was somewhat different. Pagodas were expressed as above by prefixing ಗು to the integers, and then the sign ೯̅ was placed to mark the fanams, which were 10 to the pagoda. In filling up the places of fanams, the integers from 1 to 4 were used, but if the number were 5, the fractional mark || for half was placed instead of it, denoting $\frac{1}{2}$ a pagoda. If the number of fanams were greater than 5 and

less than 10, figures denoting fanams were placed after the fractional parts of the pagoda, and the sign 6̅ omitted. If there were no fanams, a cipher was placed after 6̅ to show that there were none. Ciphers were also used to denote the relative value of the fractions.[1]

	p. f.		p. f.
Thus ಸ೦ ०6०̅ was	1 1	ಸ೦ ०6̅००–ı̅ was	1 $\frac{1}{16}$ & $\frac{1}{64}$
ಸ೦ ३‖०	3 5	ಸ೦ ३6̅०००ı̅	3 $\frac{1}{64}$
ಸ೦ ೪‖०	4 6	ಸ೦ ೪6̅००००–̅	4 $\frac{1}{256}$
ಸ೦ ३6̅०ı–ı–̅	3 1¼, $\frac{1}{16}$, $\frac{1}{64}$, & $\frac{1}{256}$	ಸ೦ ३6̅०ı०ı–̅	3 ¼, $\frac{1}{64}$ & $\frac{1}{256}$
ಸ೦ ೪6̅०ı–ı̅	4 ¼, $\frac{1}{16}$ & $\frac{1}{64}$	ಸ೦ ೪6̅०‖००–̅	4 ½ & $\frac{1}{256}$

Weights.[2]

The seer (*sér*) is the standard of weight and measure. The *kachcha sér* (cucha seer) is equal to the weight of 24 rupees or ·6067 lb. avoirdupois. 40 seers = 1 mana (maund), and 20 mana = 1 khandi (candy). By this weight are sold areca-nut, sugar, drugs, cotton, silk, &c.

Oil and ghee are frequently sold by measure; a seer weight of oil being put into a cylindrical brass vessel that exactly contains it, which serves afterwards as a standard.

The *pakka sér* (pucka seer) is formed by mixing equal quantities of the *nava dhánya* or nine kinds of grain (rice, uddu, hesaru, hurali, togari, avare,

[1] The following items (to which I have added the equivalents) taken from a bill for work done, presented to me while this sheet is going through the press, will serve as an example of the way in which the system is applied to British Indian money.

०ೡ७	R. 19	4	0	३‖	R. 3	8	0	०‖≡	R. 1	11	0
೪‖‖०ᵥ	4	12	S	०‖‖०	0	12	0	೪‖=	4	10	0
೪6̅≡०	4	3	1	०‖‖=	1	14	0	‖‖=	0	14	0

[2] Chikka Deva Rája is said to have called in the seals used in the eighty-four gadis or taluqs, and finding that they varied greatly, he had a common seal made, bearing the monogram *De* in the middle, with the sun and moon, surrounded by a circle containing the name of the gadi. A gold ring with this seal engraved on it was given to each Amildar. Silver ones, with only *De* on them, were given to the hobli and village officials, and the customs and tax collectors. Wooden stamps (*mudrekól*) with the same monogram, between the sun and moon, were provided, to be kept in each chávadi and used by the totis, talavárs and nírgantis, as directed by the heads of villages, to be affixed to houses of criminals or defaulters, and on the heaps of grain divided between the Government and the cultivators.

The same stamp was engraved on standard weights and measures ordered to be used in shops and markets. The weight of 3 Kanthiráya hana being taken as equa to 1 duddu, the following was the scale of weights fixed :—

1 duddu	=	1 tóla
24 ,,	=	1 kachcha sér
10 kachcha sér	=	1 dhadiya
4 dhadiya	=	1 chikka mana
44 46 sér	=	1 dodda mana.

kadale, ellu and wheat), and then by taking of the mixture 84 Rs. weight, which is put into a vessel that will exactly contain it when heaped. This serves for a standard, and measures 74·8125 cubical inches or ·3592 gallons.

This is the dry measure, of which 20 *koḷagas* or *kúḍu* everywhere make 1 *khanḍaga* or *khanḍi*, but the number of seers to the koḷaga is different in different parts. The Sultáni koḷaga, established by Tipu Sultan, contained 16 seers. One of 8 seers is called the Krishna Rája koḷaga, being $\frac{1}{20}$ of the Krishna Rája khanḍi established by Purnaiya. The koḷaga of 10 seers is called khararu koḷaga.

Measures.

Before the introduction of the English land measures, the land measures in Mysore corresponded with the measures of capacity, and depended on the area of land which can be sown with a given quantity of seed. This varied greatly on dry and on wet land, and for every variety of grain and of soil. It is almost needless to observe that this mode of measurement afforded incompetent or dishonest revenue officials plausible excuses for laxity of practice and fraud. But in order to introduce uniformity, the following measures have been determined. On dry land it was estimated that one khanḍi or khanḍaga of seed would suffice to sow 64,000 square yards, and accordingly this area represents a khanḍi of dry land, whereas, on wet or garden land, a khanḍi would only sow 10,000 square yards, which area denotes a khanḍi of wet land.

The following therefore are the established standards :—

Grain Measure.

4 Chattaks	=	1 Pávu
2 Pávus	=	1 Payíli or Paḍi
2 Paḍi or Payíli	=	1 Seer
2 Seers	=	1 Baḷḷa
4 Baḷḷas	=	1 Koḷaga or Kúḍu
20 Koḷagas or Kúḍus	=	1 Khanḍaga or Khanḍi.

Land Measure.

Quantity of seed sown.	Square yards.	Equivalent area of land.		
		Acres.[1]	Guntas.	Sq. yards.
Dry Land—				
1 Payíli or Paḍi	200	—	1	79
2 ,, = 1 Seer...	400	—	3	37
2 Seers = 1 Baḷḷa	800	—	6	74
4 Baḷḷas = 1 Kúḍu	3,200	—	26	54
20 Kúḍus= Khanḍaga or Khanḍi ...	64,000	13	8	112
Wet and Garden Land—				
1 Payíli or Paḍi	31¼	—	—	31¼
2 ,, = 1 Seer	62½	—	—	62½
2 Seers = 1 Baḷḷa	125	—	1	4
4 Baḷḷas = 1 Kúḍu	500	—	4	16
20 Kúḍus = 1 Khanḍaga or Khanḍi ...	10,000	2	2	78

[1] Acres consist of 40 Guntas, each Gunta being 121 square yards.

Measures of Time.

Eras.—By the Hindus in Mysore the Saka era, afterwards called (*see* p. 293) the S'áliváhana S'aka, or era of S'áliváhana (a corruption of S'átavá-hana),[1] dating (with sometimes a variation of two or three years) from 78 A.D., has always been and still is universally employed. Occasionally the era of Kali Yuga, 3101 B.C., is used.

An attempt was made by Vikramáditya, the most powerful of the Chálukya kings, to introduce a new era, dating from his accession to the throne, and called the Chálukya Vikrama s'aka. The near coincidence of the end of the first millennium of S'áliváhana with the commencement of his reign, and the correspondence of his name with that of the era reckoned from 57 B.C., in universal use in the north of India, doubtless suggested the innovation, in conjunction with the usual motives of ambition. The Chálukya Vikrama era dates from 1076 A.D., and continued in use in inscriptions throughout their dominions as long as the power of the Chálukyas was in the ascendant, though several of Vikramáditya's successors copied his example and sometimes dated from their own eras.[2]

By the Muhammadans the era of the Hijra, or Flight, of Muhammad from Mecca to Medina, is universally employed. It dates from 622 A.D., reckoning by lunar years.[3]

Tipu Sultan, with that love of innovation which characterised his rule, and from his ambition to establish a new order of things originating with himself, made a reformation of the calendar; in this also, as in so many other particulars, the transactions of the French Revolution finding an echo or parody in Mysore. Tipu's new system, which ended with his life, was introduced with the 1200th year of the Hijra, or 1784 A.D., but was revised four years afterwards. The new era, in opposition to the practice of the whole Muhammadan world, dated from the Maulúd, or Birth, *i.e.* as supposed, of Muhammad. But the difference between Tipu's new Maulúdi era and that of the Hijra was only about twelve years, whereas Muhammad was fifty-one years of age at the time of the Hijra. The Maulúd may therefore perhaps be supposed to have some possible reference to the origin of Islam, counting it from the period when Muhammad first formed the conception of his prophetic mission, which is said to have been at forty years of age. Thus much is necessary to state on the subject in order to explain the apparent discrepancy of the dates on his coins, &c. Another

[1] I have actually found an inscription, of the time of Bukka Ráya of Vijayanagar, dated in the *S'átaváhana s'aka.*

[2] From confounding the Chálukya Vikrama era with the northern era of Vikramáditya, the Administration Report for 1869-70 contains the announcement that inscriptions had been deciphered and translated bearing date *as far back as the year one!*

[3] The following formula given by Sir H. Nicolas will be found useful in converting Hijra into Anno-Domini dates. Multiply the years elapsed by 970203; cut off six decimals; add 622·54, and the sum will be the year of the Christian era.—*Chron. of Hist.*, 17.

feature of the new scheme was that the numbers were written from right to left, instead of in the usual manner of left to right according to the decimal system.

Years.—The *Brihaspati Chakra* or Cycle of Jupiter, of 60 years, is the common and general mode of reckoning. Each year has a special name (*see* below), which alone it is usual to mention, without its number according to any era.

The year commences with new moon in Chaitra, which falls in March. It is divided into 12 lunar months (for names *see* p. 101), of 30 and 29 days alternately, making altogether 354 days. As this is eleven days less than the solar year, the Chandramána or luni-solar calendar was invented to reconcile the difference. For this purpose a cycle of 19 solar years was adopted as being equal, or nearly so, to 235 lunations, and in each cycle of 19 years there are added seven intercalary months, namely, in the 3rd, 5th, 8th, 11th, 14th, 16th, and 19th years. The name and position of the intercalary month are determined in the following manner :—When two new moons fall within the same solar month, the corresponding lunar month is repeated. The extra month is placed before the ordinary one and called by the same name, but distinguished as *adhika*, or added, the normal month being called the *nija* or true one.[1]

Each month is divided into two *paksha*—the *s'ukla paksha*, or *s'udda*, the bright fortnight from new moon to full moon ; and the *krishna paksha* or *bahula*, the dark fortnight from full moon to new moon. Each paksha contains 15 *tithi* or lunar days, which are reckoned from *amávás*e (new moon), or *púrnami* (full moon), as the case may be. The days of the week are named from the planets, on the usual system. The day of 24 English hours is divided into 60 *ghalige* or Indian hours, each equal to 24 minutes : 7½ ghalige or 3 English hours make one *jáma* or watch.

As Marsden has said (*Num. Or.*), many Eastern nations, as well as the Greeks and Romans, have been in the practice of expressing numbers, and dates in particular, by means of letters of the alphabet, to each of which a certain value is assigned. These may be either employed simply like other ciphers, or, being distributed among the words of a sentence, may form what is called a chronogram. In carrying out the system the Arabs did not adhere to the direct order of the letters in their own alphabet as it now exists, but followed the old order of the Hebrew alphabet. They thus formed the scheme called *abjad* from the first four letters, *a*, *b*, *j*, *d*. Tipu Sultan at first followed this system, which is universally employed by the Muhammadans, but four years afterwards introduced one based on the order of the letters in the modern Arabic alphabet, which was therefore, on a similar principle, called *abtas*, but named by himself *zar*. Recognising, at the same time, some advantage in the Hindu cycle of sixty years, he invented names for them, formed at first according to the *abjad*, and four years afterwards according to the *abtas*, the addition of the numerical value of the letters in which (except for the first and second years) gave the number of the cycle year.

[1] *See* Cunningham's *Book of Indian Eras.*

For convenience of reference the following list is inserted of the Hindu names, together with Tipu's names for the same.[1] The cycle now current began in March 1867 A.D.

Names of Years.

No.	Hindu.	Sultáni by *abjad.*	Sultáni by *abtas.*	No.	Hindu.	Sultáni by *abjad.*	Sultáni by *abtas.*
1	Prabhava	aḥad	aḥad	31	Hevilambi	kiyá	zár
2	Vibhava	aḥmad	aḥmad	32	Vilambi	kabúd	buzar
3	S'ukla	ab	ab	33	Vikári	abal	zaráb
4	Pramodúta	abá	abá	34	S'árvari	dil	satá
5	Prajotpatti	babá	báb	35	Plava	dál	zartáb
6	A'ngirasa	bajá	táb	36	S'ubhakṛit	jabál	rabtár
7	S'rímukha	abad	tábá	37	S'obhakṛit	zaki	sakh
8	Bháva	ábád	bajá	38	Krodhi	azal	sakhá
9	Yuva	jáh	táj	39	Vis'vávasu	jalu	daráz
10	Dhátu	auj	tábat	40	Parábhava	dalu	dasad
11	I's'vara	ḥaj	abad	41	Plavanga	má	shá
12	Bahudhánya	jahad	ádáb	42	Kílaka	kabak	sárá
13	Pramáthi	jahád	bár	43	Saumya	jam	saráb
14	Vikrama	vajah	ḥájib	44	Sádhárana	jám	shitá
15	Vishu	yád	jar	45	Virodhikrit	ádam	zabarjad
16	Chitrabhánu	zahad	rijá	46	Paridhávi	vali	saḥar
17	Svabhánu	jauzáh	ḥár	47	Pramádícha	váli	sáḥar
18	Tárana	ḥaiy	dar	48	A'nanda	kaukab	rásikh
19	Párthiva	váhid	dár	49	Rákshasa	kavákab	shád
20	Vyaya	buduḥ	raḥat	50	Nala	yam	ḥarásat
21	Sarvajit	ṭayab	bárid	51	Pingala	davám	sáz
22	Sarvadhári	ṭáyab	charkh	52	Kálayukti	hamd	shádáb
23	Virodhi	yauz	khiráj	53	Siddhárthi	ḥámid	bárish
24	Vikriti	kad	táz	54	Raudri	ján	rastár
25	Khara	ḥávi	khirad	55	Durmati	odan	bushtar
26	Nandana	kabad	badartáb	56	Dundubhi	hamáyi	bashárat
27	Vijaya	ágáh	dartáj	57	Rudhirodgári	majid	sháraḥ
28	Jaya	vahíd	dádár	58	Raktákshi	koḥal	rashad
29	Manmatha	yáḥi	zád	59	Krodhana	jahán	ṣabáḥ
30	Durmukhi	kaiy	zar	60	Kshaya	majíz	irshád

Tipu Sultan's Names for the Months.

(By abjad) ahmadi bahári j'áfari dárái háshami vas'ái zabarjadi ḥaidari ṭulúi yusufi yezidi bayáṣi.

(By abtas) ahmadi bahári ṭakḥi shumri j'áfari ḥaidari khusravi díni zákiri raḥmáni rázi rubáni.

[1] But as his system did not outlast him, and he reigned for only seventeen years, the names actually used are only the four from *zaki* to *dalu* of the abjad and the thirteen years *shá* to *barish* of the abtas. The former are 1197 to 1200 Hijri, and the latter 1215 to 1227 Maulúdi.

ADDENDA ET CORRIGENDA

Page	line	
1	17	After "scale" add, "The exact area by Revenue survey is 18,795,075 acres, or 29,367 square miles 195 acres."
65	15	With reference to "general dryness," add (as foot-note), "[1] The relative mean annual humidity of the Mysore State is given as 66 by Mr. Blanford."
66	Note [1]	Add, "After all the other factors have been considered, the position of the year in the sun-spot cycle may be taken as an index of the steadiness or variability of its general characteristics. Thus, in years of maximum sun-spot the monsoon is distributed more evenly, and local anomalies are less exaggerated. The years about the epoch of minimum are characterised by greater local contrasts and irregularities."—Douglas Archibald, in *Nature*, 1896.
67	14	After "31 Dec. 1881," add, "at about 7 A.M. There was also an earthquake at Bangalore on the 13th April 1882, at 9.30 P.M.
101	14	With reference to "nakshatras," add (as foot-note), "[3] The leading stars (*yoga*) of the nakshatras correspond with the following stars in European catalogues :—

1. β Arietis.	10. Regulus	19. 34 Scorpii
2. 35 Arietis	11. β Leonis	20. δ Sagittarii
3. η Tauri	12. Denib	21. φ Sagittarii
4. Aldebaran	13. δ Corvi	22. Altair
5. 116 Tauri	14. Spica	23. α Delphini
6. 133 Tauri	15. Arcturus	24. λ Aquarii
7. Pollux	16. 24 Libri	25. Markab
8. δ Cancri	17. β Scorpii	26. Alpherab
9. 49 Cancri	18. Antares.	27. ζ Piscium

K. L. Chatre, in *Ind. Ant.*, III., 206. Also *see* IV, 150, and XIV, 43."

104	15	Add, "1892 . . . 5·01 ; 1893 . . . 5·39."
180	Note [1]	Add, "And at the end of 1895, his successor, the Earl of Elgin, visited the keddahs."
194	13	After "the tasar silkworm," add, "(*antheræa paphia*)."
205	38	To "river Krishna," add (as foot-note), "[3] The Hullu is also called Gauli ; and the Chokatu or Chakati is also called Choli and Chuli."
208	15	To "Australia," add (as foot-note), "Professor Huxley observed, in his paper on 'The Geographical Distribution of the Chief Modifications of Mankind' (*Jour. Ethnol. Soc.*), that 'the indigenous population of Australia presents one of the best marked of all the types or principal forms of the human race' ; a description of which he gives, founded on their physical characters alone, and goes on to state that the group to which he gives the name of Australoid is not confined to that continent only, but includes the 'so-called hill tribes who inhabit the interior of the Dekhan in Hindustan.' To these he adds the Ancient Egyptians and their modern descendants."
208	21	To "South of Europe," add (as foot-note), "As our knowledge of the Hamitic aborigines increases, it becomes more and more evident that the North African and European peoples belong fundamentally to the same primitive stock, which had its origin more probably in the south than on the north side of the Mediterranean. From this cradleland of the highest division of mankind the race spread itself eastwards through Egypt to Asia . . . and northwards across then continuous land to Europe in company with the late pliocene and early pleistocene African fauna.—A. H. Keane, in *Academy*, 7 Mar. 1896."

Page	line	
209	Note[2]	Alter authority to "Beames, *Comp. Gram.*, Intro. xi."
212	Note[1]	Add, "Hale paiki might also, perhaps, mean 'the old lot.'"
218	Note[1]	For "the number" (l. 1), read "the increase from 1801 to 1804."
223	24	To "luxury," add (as foot-note), "The origin of the Panchálas, or five castes of skilled artificers, should be considered as an escape of Jaina artificers from destruction by assuming a semblance to their Saivite persecutors.—Sir Walter Elliot, *S. I. Coins*, 38."
236	19	For "from Mádhva," read "from Madhva."
240	39	For "Sriangam," read "Srirangam."
287	17	For "Chanda Gupta," read "Chandra Gupta."
292	7	To "Godavari," add (as foot-note), "The two branches of the Godavari, where the river divides to form the Delta, are still distinguished by the names of the two great queens, the northern as the Gautami, and the southern as the Vas'ishthi.—Elliot, *S. I. Coins*, 21."
293	22	To "coronation," add (as foot-note), "Later discoveries throw doubt on this, Dr. Bühler thinks.—See *Academy*, 2 May 1896."
294	20	For "S'ungakam," read "rajjukam," and omit the sentence which follows.
294	26	For "name defaced," read "named S'iva . . . varmá."
300	6	For "he gave up his life," &c., read "a prince named S'ivananda-varmá, whose territory had been laid waste, retired from the world."
302	20	To "Vijayaditya II." add (as foot-note), "He was also called Pugul-vippavar-Gaṇḍa. His son Látarája Víra-Chóla was ruling in 992.—*Ep. Ind.*, IV, 138."
303	2	For "Vajrahastu," read "Vajrahasta."
312	Note[6]	After "Kitthipura," add "(which I have now identified with Kittur in Haggadadevankote taluq)."
315	4	To "Ráchamalla," add (as foot-note), "According to an inscription found in North Arcot, he was the son of a Rana Vikrama.—*Ep. Ind.*, IV, 140."
316	20	To "Kalinga-nagara," add (as foot-note), "Identified with Mukhalingam, about 20 miles from Parlákimedi, on the left bank of the Vams'adhára.—See *Ep. Ind.*, IV, 188."
317	12	To "Jantavura," add (as foot-note), "Probably Jayantapuram, another name for Kalinganagara. *l.c.*"
327	8	For "Chalukyas," read "Chálukyas" throughout this section.
333	12	For "Rájendra, Rájádhirája, 1016–1064," read "Rájendra-Chóla 1011, Rájádhirája 1045, Rájendra-Deva 1051."
336	Note[1]	For "east" (l. 3) read "west"; and for "west" (l. 4) read "east."
363	1	After "Kenchengod," add "or Chikkanhalli."
392	17	For "Schwartz," read "Swartz."
396	25	For "W. Schwartz," read "F. C. Swartz."
416	25	For "fastened in," read "fastened on."
423	12	After "Mahrattas," read "whom he finally crushed by defeating Holkar in the decisive battle of Mehidpur, and afterwards received the surrender of the last Peshwa, Baji Rao."
423	37	Casamaijor, also spelled Casamajor.
426	15	After "1805," add (as foot-note), "The founder of the family in Mysore was Bistappa Pandit from Satara, who was the father of Rama Rao."
429	23	To "Divan," add (as foot-note), "This was Venkatramanaiya to the 14th May 1832, and then Bábu Rao till the 19th April, 1834. The Commissioners, it appears, had originally intended to leave in the Divan's hands almost as much power as he had under the Raja, but the Governor-General did not concur in this view of their duties."
444	16	After "Sept. 1895," read "to Dec. 1896. Colonel Donald Robertson . . . Dec. 1896."
445	15	After "appointed," read "In Dec. 1896, he was nominated Lieutenant-Governor of the Punjab, and Colonel Donald Robertson, Resident at Gwalior, succeeded him in Mysore."

Page	line	
445	17	After "experience," add (as foot-note), "Colonel Henderson was created C.S.I. in 1876; Mr. Lee-Warner in 1892, and Mr. Mackworth Young in 1890."
449	Note [1]	Add at the end, "Tutor and Governor."
458	Note [3]	After "Thibaut," insert "and Professor Whitney," add at the end "361."
504	31	For "about the same time" read "in 1838."
505	Note [2]	Add "in 1847."
524	24	After "other parts" add, "The total output for 1895 in India was 248,885 ounces, of which Mysore produced 246,758."
527	4, 10	Add (as foot-note), "The highest prices quoted for Mysore and Champion Reef were $8\frac{3}{4}$ and $8\frac{3}{8}$ in 1896."
527	table	Add a column for 1896—

Mysore	104,934
Urigam	65,580
Nundydroog	44,925
Champion Reef	85,928
Others	14,373
Total ozs. ...	315,740

528	table	Add amount paid in dividends in 1896, £499,625.
539	21	After "years," add (as foot-note), "In Feb. 1894 it was formed into a new Company, called the Mysore Spinning and Manufacturing Company, and paid dividends of $4\frac{1}{2}$ per cent. in 1895 and 6 per cent. in 1896."
590	15	After "*Ekkada chávadi*," add (or more probably *Lekkada chávadi*)."
593	21	For "1648 to 1670" read "1645 to 1660."
691	30	Insert $\frac{1}{10}$ at beginning of line.
745	30	After "also" insert "and at p. 642."
747	18	After "1854," add (as foot-note), "Dr. Duff and Mr. Marshman worked out the educational portion of their statements before the (Parliamentary) Committee in a form which Lord Northbrook, then the President's private secretary, embodied in a State paper. That was sent out to the Marquis of Dalhousie in the memorable Despatch of July 1854, signed by the Directors of the East India Company. Dr. Duff's handiwork can be traced not only in the definite orders, but in the very style of what has ever since been pronounced the great educational charter of the people of India."—Geo. Smith's *Life of Dr. Duff*, II, 245.
750	22	After "Survey Department," add (as foot-note), "What John Knox and his associates did for Scotland in 1560. He (? Dr. Duff) urges (in 1841) that the same means which the Scottish Parliament then decreed, be adopted by the Indian Government, in levying a school cess on the land tax, as a road cess had even then begun to be levied. . . . Such a cess was raised first in Bombay, and then by the late Earl of Kellie in a district in Central India, till now it is exacted all over India."—*ib.* I, 437.

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LONDON